

COAL AGE

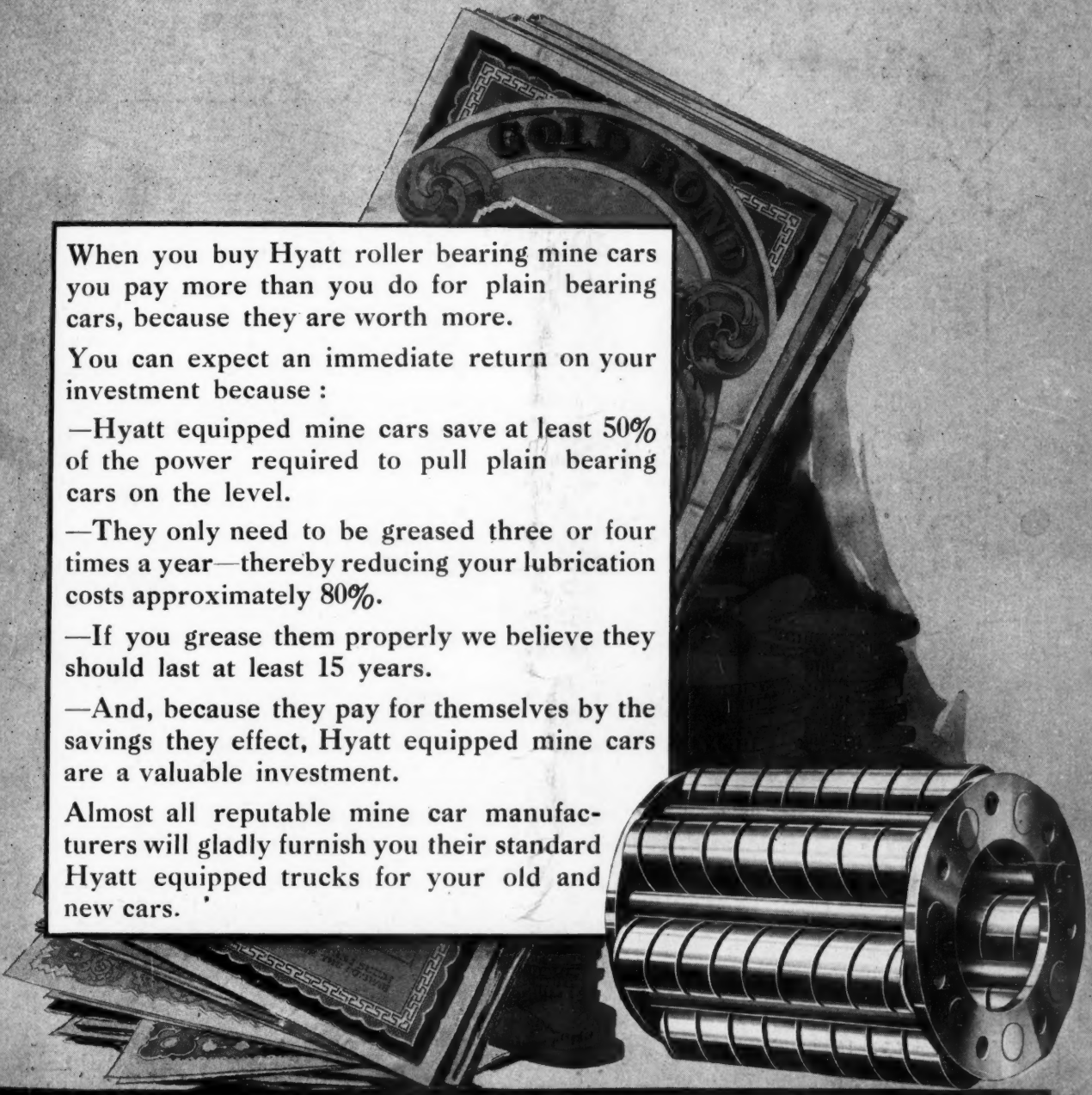
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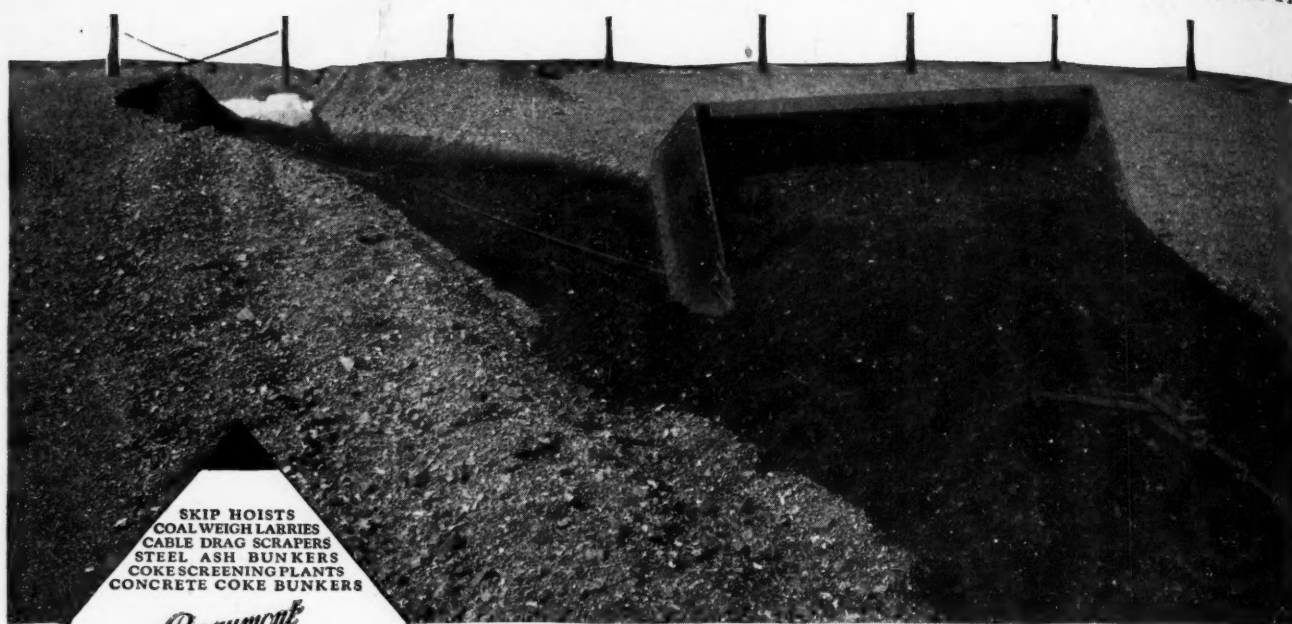
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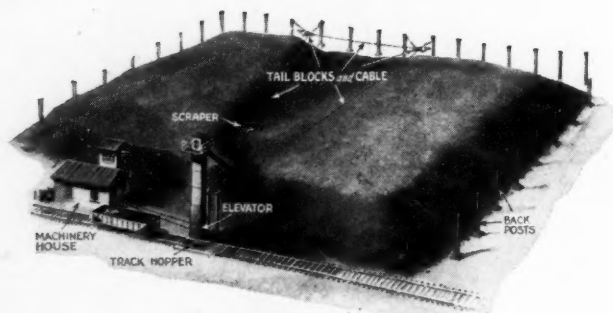


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COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, Editor

Volume 23

NEW YORK, APRIL 5, 1923

Number 14

Set Them Up Again

GENERAL GOETHALS last week closed his desk with a bang, grabbed his hat and left the office of Fuel Administrator for New York State in a huff. Like other famous men he found the coal problem not a stone wall against which he could butt his head with super engineering skill but a simple elemental test in economics where bluster and fame came to crestfallen defeat. According to the *New York Globe*, the General declared his office was a joke and that in view of the way the coal situation was handled from Washington he would like a chance at once to vote in opposition to the Harding administration.

Of course what peeved the General is that his mighty person was not sufficient to obtain for New York State, his protégé, more than was coming to it. He flays the Pennsylvania Fair-Price Commission for allowing certain independents a fair price for their coal, he admits he would have let Canada freeze and recommends a program of nationalization that would out-Brophy Blankenhorn.

He may cool off some day when his offended dignity is once more enthroned and acknowledge that Woodin had the thing well in hand when he took hold.

The coal industry may be a fine place for a dictator, as he suggests, but we doubt if his candidacy would now be seriously considered.

What Is the Price of Coal?

IT IS more generally true than not that what the consumer is willing to pay sets the price of bituminous coal. This, of course, is true of any commodity in which there is no corner or monopoly. The consumer's interest may be largely influenced by purely psychological factors, either for or against high prices, as when a buying panic boosts prices or a buyers' strike depresses them. But the simple fact remains that with a commodity so freely competitive as soft coal the indifference or anxiety of the buyer is the chief factor in setting the price. This is particularly and more noticeably true with respect to the open-market or "spot" prices.

Several of our readers, representing smaller operations in the field, have recently called our attention to the fact that the spot prices at the mines quoted weekly in *Coal Age* often are higher by as much as 50c. than they can obtain for their product on corresponding dates. The answer is that the two figures are not necessarily comparable. The current quotations published by *Coal Age*, and presumably this is true of those published by our contemporaries, are prices to consumers—that is to say, the "market" on coal in those centers where trading is done.

It is a repetition of well-known facts to recite that coal is sold through three well-established channels of trade: Directly by the sales departments of producers,

directly by sales agents acting for and in behalf of producers on contract arrangement with fixed compensation, and by independent wholesalers or jobbers. If on a given day in a given city, as for instance Philadelphia, where buying and selling of coal centers, buyers are disposed to place orders for current delivery of a given coal, say Fairmont medium sulphur steam run-of-mine, at prices ranging from, say, \$2.50 to \$3.25 per net ton at the mines, this fact will be evidenced by conversations between buyer and seller.

If the seller is the sales representative of a producer, either directly or through a sales agency, he can and does act on his own initiative, accepting orders at the price he can induce the buyer to accept. Against that price are the charges for selling before the mine is credited. In the case of the selling department of a producer this usually is cost, and for a sales agency a fixed percentage of sale price f.o.b. mines.

A variable but considerable tonnage is handled through independent wholesalers or jobbers. Smaller operators have middlemen to whom they are accustomed to turn when they have coal to sell, and each jobber has a list of producers to whom he may turn for coal when he has a buyer in prospect. Except during times of great urgency for supplies, when prices are high and panic conditions prevail, the producer and independent middleman on whom he depends for distributing his product have a rather loose but tangible connection. In many such instances there is a common understanding that the coal will be sold to best advantage and that settlement will follow at stated intervals.

In other instances, and this is more typical of the market today, the middleman makes the producer a flat offer on specified tonnage to match the firm offers of consumers. Or this middleman picks up coal "on wheels" at favorable prices, as the shipper on consignment feels the pinch of carrying the coal, and offers this "bargain" to the buying trade. In any event, to go back to our illustration of a market on Fairmont steam coal in Philadelphia, assumed to be on a certain day \$2.50@3.25, we find that the middleman, knowing that this top figure is his maximum and the lower figure the more likely for a quick turn, canvasses the field either through his local agent or by long-distance telephone, and offers \$2 to the producer who either has mined the coal but has not sold it or who wants orders that he may run the next day. The producer who accepts business at \$2, seeing a published quotation on coal from his field 25c. to 75c. above what he can get is disposed to say the published quotation is grievously in error.

It is difficult enough to round up data sufficient to report the market on soft coal within narrow limits as to grades and quality on the markets where buying and selling are most active, without attempting to cover the multitude of prices that obtain in the field among the smaller shippers, whose product has a wide range from

best to worst and whose values in the market have a correspondingly wide range.

What the producer gets for his coal is not by any means always the market, for to the best salesman go the best prices and a shipper without his own sales force must take what he can get. The price of coal is what the consumer pays.

These Three

THE three qualifications for a mine manager are character, intelligence and education. The first two are almost entirely innate. Education does little to give a man power of leadership, strength of will, quickness of judgment, patience, freedom from excessive sensitiveness, ability to express himself well, power of reserve—all the qualities that mark a man of the world. Education may even weaken character by making a man defer to the judgment of others and by inducing a man to lay more stress on the manner than on the matter of expression. It may make a man of narrow vision more meticulous than ever.

Intelligence also is largely innate. It is the ability to apply and reason about facts. It has little to do with the acquisition of a knowledge of them. Education probably develops intelligence but little. The reasoning faculty, what is called the intelligence quota—the I. Q. of the psychologists—soon reaches in life a given level after which it quite generally fails to increase. Many of the problems presented by life are answered rightly or wrongly partly from experience, education or group consciousness and not by reasoning at all. We appear to be more intelligent but are really only better educated.

If character and intelligence are really, or even only in the main, innate, then indeed it should occasion no surprise if education fail to make a man. The "educated fool" should not be any more a real matter of surprise and regarded as phenomenal than the short-sighted long-distance runner. We know that the powers of sight are distinct from the powers of locomotion. We do not assume that they are connoted, much less correlated. Why then expect education, intelligence and character always to be found in one man?

An educator was asked recently how he could expect to get results out of the untested material furnished him. He replied that it *was* tested—in examinations. That is to say, he tried to find if facts had stuck as a test as to whether other facts might be expected to stick. A splendid test if he was trying to find out whether he could educate his man, but useless if his purpose was to find out if the man was qualified to be a good business man with the three qualifications—character, intelligence and education. That educator was trying to tell the public that his graduates would have all three qualifications yet he could not give them the first two and could only add to the third.

Let the colleges end their clatter about how much they do for the character and intelligence of their students. They do about as much, and can do about as much, for these qualities as they do for the stature of their *protégés*. We presume that if the demand for tall men and fat men were vocal the schools would promise to make their graduates both tall and fat. Almost all that the colleges do is to inform. It is about all that they can be expected to do, and what a noble task it is!

Set an intelligent savage of character to figure out the operation of a motor—how far would his intelli-

gence and his character take him? Could he learn the relative availability of a delta and a star connection? Could he lower a power factor? This is no reflection on intelligence or character except that it argues that they are not enough in themselves. We must have education. There is place in the world for men, even though they be low in both intelligence and character, as long as they are well educated. There is a reward for such men and a big reward for those who are well endowed with two of these and a bigger reward yet for those who have all three. Education does not accomplish everything but what it does is mighty well worth the doing.

"From the Pan Into the Fire"

ONE reads with a puzzled brow the "arguments" for nationalization of the coal industry, for the arguments are not arguments but protests. In the current issue of the *Outlook* C. J. Golden restates his view of nationalization, and John Spargo, "an authority on socialism," takes the contrary side. So far Mr. Golden and the school of thought which he follows have had one stock argument for taking over the coal mines and that is somewhat loosely defined as "fact finding." None of the advocates of taking over the mines offers argument or reason for such action. They agree in saying that they are not satisfied with present conditions; they want things changed and nationalization is the thing proposed. We believe they want the government to take over the mines because they consider this the simplest way to get everything they want—higher wages, less work, more power—everything everybody with human instinct and active appetite wants. For instance, Golden says "the first year [of nationalization] the miners' wages might be reduced, seeing the kind of representatives you've got here now in the government. But not the second year. The workers would soon learn not to vote for men who reduced them. When the representatives' political fates depended on it, we'd get fair conditions from them."

It is rather difficult to answer arguments as nebulous as those of Golden et al., but John Spargo summarizes the results of nationalization of industry as variously practiced and attempted and concludes that the plan "offers no present relief from the evils of the existing methods of producing and distributing coal, bad as they are. It simply invites us to jump from the pan into the fire."

The plea for nationalization as set forth by the miners is not likely in the last analysis to be seriously opposed by those who own coal properties and would sell them to the government. If the United Mine Workers want to buy the coal mines, they are for sale today and if they can get the taxpayers' money with which to make payments, well and good. Before that happens some who are not to be charged as speaking for the operators will challenge the proposal as opposed to public interest, for, as Spargo says, "it opens the way for an appalling amount of wastefulness and extravagance." Concluding, he says: "For the present at least I am free to say that I can see no hope of anything good or useful to be attained by any such extension of the power of the government and its preponderance over the economic life of the nation as has been suggested. On the contrary, the sooner we can lessen those powers, reduce the size of our governmental machine and its interference with the economic life of the nation, the better will it be for all of us."

Nanticoke Coal Is Thickest Though Deepest of All Measures in Northern Anthracite Field

Becomes 39 Per Cent Thinner and 271 Ft. Deeper in 50 Years—Inefficiency Cuts Mines' Output 24.3 Per Cent Since 1902—Four Plants Prove Value of Up-to-Dateness

BY DEVER C. ASHMEAD*
Kingston, Pa.

FIFTY years of hard-coal mining in the Nanticoke district of Pennsylvania's northern anthracite field—a district covering the western end of the field below Wilkes-Barre—has developed the widest variations in thickness and depth of coal measures to be found anywhere in the field. In spite of this and the presence of some troublesome displacements, the problems and general tendencies of the Nanticoke district parallel those of the Wilkes-Barre and Lackawanna districts, treated in preceding articles of this series. The average thickness has diminished from 11.5 ft. in 1872 to 6.83 ft. now—but it still is 1.95 ft. thicker than Lackawanna and 1.74 ft. thicker than Wilkes-Barre coal. This advantage is partly counterbalanced by the depth of the field—an average of 567 ft. compared with 399 ft. for Wilkes-Barre coal and only 268 ft. for Lackawanna. Of course pumping and haulage distance are increasing and are multiplying power costs.

Four big new collieries, producing in 1921 about 32 per cent of the district's output, have had a deep influence on Nanticoke statistics. They indisputably prove the value of modern methods and equipment. While

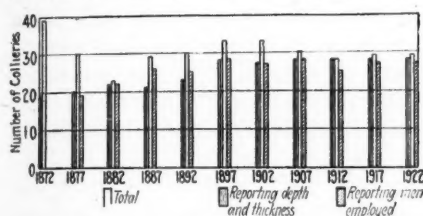


FIG. 25—NUMBER OF COLLIERIES CONSIDERED IN THE NANTICOKE DISTRICT

This shows in the first column of each period the number of collieries which reported on thickness and depth. The second column gives the number of collieries reported by the State Department of Mines and the third column gives the number used in the tonnage calculations.

decrease in the average Nanticoke miner's production from 5.34 tons in 1902 to 4.04 tons in 1921 can be

explained only by charging the miners with inefficiency.

*Assistant editor of *Coal Age*.

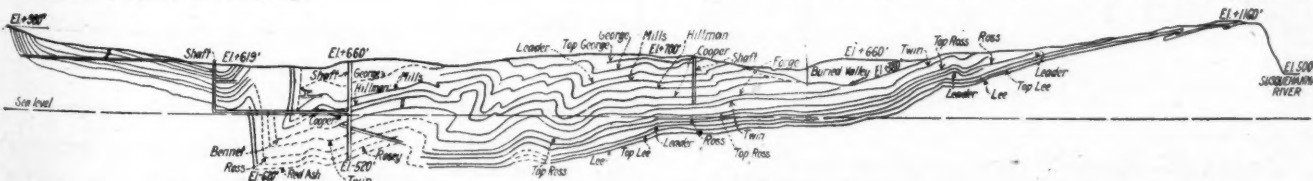


FIG. 26—A GEOLOGICAL CROSS-SECTION OF THE NORTHERN ANTHRACITE COAL REGION IN THE VICINITY OF NANTICOKE

Complete cross-section of the field made near the City of Nanticoke. Working beds are in the heavy black lines. Dotted lines represent beds located by estimate. The faults shown cause considerable displacement and steep pitches in the vicinity of the faulted area. As the beds approach the outcrop on the southern side of the field they become steeply pitching. The "buried valley" is indicated by the heavy wash shown in the center of the cross-section.

explained only by charging the miners with inefficiency.

Practically all of the Nanticoke district collieries furnished complete information for the years from 1882

to 1922 (Fig. 25 and Table XXI). Even for 1877 reports are available from about 50 per cent of the collieries. So the curves plotted on this data give a good picture of what has happened in this district. This series of studies has been confined as nearly as possible to fresh-mined coal. Washery tonnage has been omitted, except washed coal that could not be separated from the breaker output. Strippings did not have to be considered in this district, as there are none of any importance.

The geological conditions in the Nanticoke district are distinctive. Mines vary from shallow workings to some of the deepest in the northern anthracite region. One of the shafts sinks 1,800 ft. The majority tap deep-lying beds. About four miles west of Wilkes-Barre the coal is deepest. From that point west the measures rise and on the top of the mountain back of Shickshinny the beds spoon out. On both sides of the basin but especially on the south side steep pitches are encountered. Fig. 26 is an actual section of this district. It will be noted that there are a few heavy faults

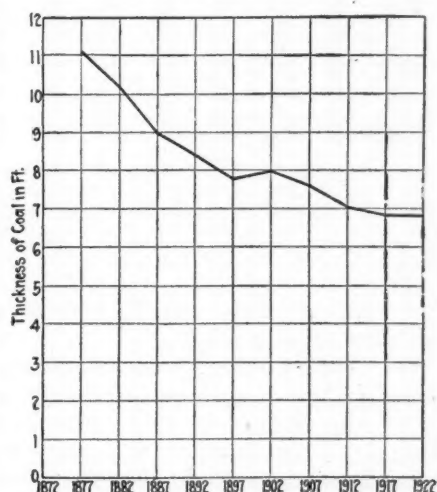


FIG. 27—AVERAGE THICKNESS OF NANTICOKE COAL BEDS BY FIVE-YEAR PERIODS FROM 1872 TO 1922

In the first section of this article under Fig. 3 (*Coal Age*, Vol. 23, p. 324) there was a complete description of the method used in the calculation of this curve. The main feature to be noted in this curve is the general decrease in the average thickness of the beds.

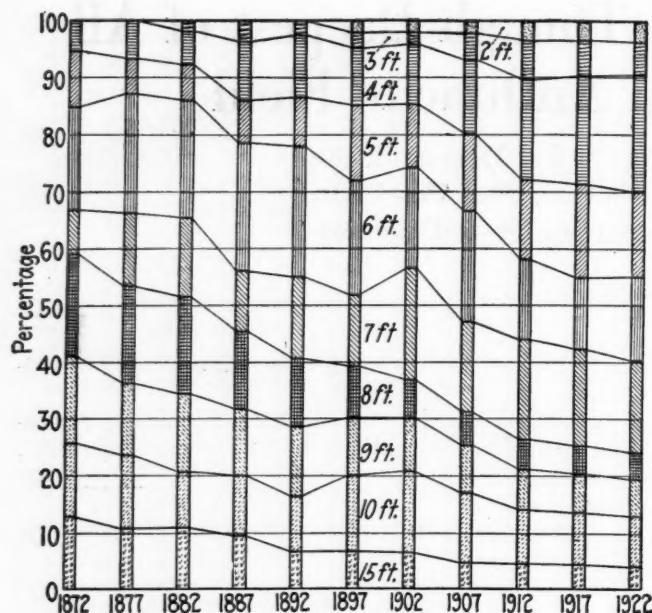


FIG. 28—PERCENTAGE OF EACH THICKNESS TO TOTAL NUMBER OF NANTICOKE BEDS

The variation in the thickness of the beds by 5-year periods from 1872 to 1922 is shown by this curve. The method of arriving at these percentages has been described in the first part of this article under Fig. 4 (*Coal Age*, Vol. 23, p. 324).

that cross the beds, causing considerable displacement and some steep pitches.

The "buried valley"—a continuation of the one mentioned in the description of the Wilkes-Barre district (*Coal Age*, Vol. 23, p. 475)—extends through this district also, from Pittston to a point west of Nanticoke. The cross-section shows that the bottom of the "buried valley" near Nanticoke is about 200 ft. below the surface. Here also some of the beds of coal outcrop in this valley, making the workings near the valley dangerous.

In this district probably more coal is being recovered from first mining in proportion to the total output than in either the Wilkes-Barre or the Lackawanna district.

A list of the beds from the surface downward as they occur in the Nanticoke district follows: Top George, George, Orchard, Mills, Hillman, Cooper, Bennett or Forge, Twin, Top Ross, Ross, Rossy, Top Lee and Lee (Red Ash).

In this district are found the thickest beds in the northern anthracite region, averaging 6.83 ft. In 1877 they showed a weighted average thickness of 11.19 ft.

TABLE XXI—NUMBER OF NANTICOKE DISTRICT COLLIERIES IN THIS STUDY

Year	Reported by Inspectors	Having Depth Data	Having Thickness Data	Having Tonnage Data
1872	39	19	19	0
1877	30	15	15	14
1882	23	22	22	22
1887	29	21	21	26
1892	30	23	23	25
1897	33	28	28	28
1902	33	22	22	22
1907	30	28	28	28
1912	28	28	28	25
1917	29	28	28	27
1922	29	28	28	27

TABLE XXII—WEIGHTED AVERAGES OF NANTICOKE BEDS

Years	Thickness of Beds	Depth of Workings	Years	Thickness of Beds	Depth of Workings
1877	11.19	296	1902	8.02	524
1882	10.24	335	1907	7.67	540
1887	9.02	346	1912	7.09	526
1892	8.43	414	1917	6.86	567
1897	7.81	484	1922	6.83	567

TABLE XXIII—PRODUCTION PER BOILER-HORSEPOWER AND PER ENGINE HORSEPOWER

Year	Boiler H.P. Installed	Engine H.P. Installed	Tons of Coal Produced Per Boiler H.P.	Tons of Coal Produced Per Engine H.P.
1877	8,370		1.75	
1882	14,400	20,425	1.22	.86
1887	21,000		1.16	
1892	25,220		1.18	
1897	35,780		1.08	
1902	52,449	70,272	.81	.61
1907	59,599	81,398	.84	.61
1912	64,398	83,962	.79	.60
1917	60,819	83,161	.72	.53
1921	60,391		.77	

Most of the coal then mined in the district was in the Cooper, Bennett and the Red Ash beds. These are the thick beds of the district. Judging by figures available for 1872, the weighted average thickness in that year was about 11.5 ft. But as 1872 production figures are not available for individual collieries the average thickness can only be estimated and therefore is not shown in the curve. Fig. 27 and Table XXII show the steady decline to 6.83 ft. in 1922. In the first 20 years of the period the decrease was 3.38 ft. while in the last 25 years it was but 0.94 ft.

TABLE XXIV—MULE AND LOCOMOTIVE HAULAGE IN NANTICOKE DISTRICT

Year	Tons of Coal Hauled Per Mule Per Day	Number of Underground Locomotives Per 100,000 Tons of Coal Produced Per Year	Year	Tons of Coal Hauled Per Mule Per Day	Number of Underground Locomotives Per 100,000 Tons of Coal Produced Per Year
1877	19.54		1902	18.85	.10
1882	16.27		1907	19.58	.50
1887	15.81		1912	23.35	1.00
1892	15.92		1917	28.65	1.60
1897	21.35		1921	28.70	2.36

Fig. 28 shows that there were fewer thin beds being mined in this district than in either the Lackawanna or the Wilkes-Barre districts, for in 1922 the beds under 3 ft. in thickness were only about 3.5 per cent of the total and those under 4 ft. only 9.25 per cent. Mining in beds less than 4 ft. thick did not start until 1882 and no 3-ft. beds were opened until 1897. The whole diagram, however, shows that thick-vein operation is steadily decreasing and thin-vein work is increasing.

In coal measures so deep as these it is not surprising that the weighted average depth of workings is greater than in either of the two districts previously described. The rate of increase in depth also is greater. Fig. 29 and Table XXII show that 296 ft. was the weighted depth of workings in 1877—the first year in which complete data were available. In 1872 the unweighted aver-

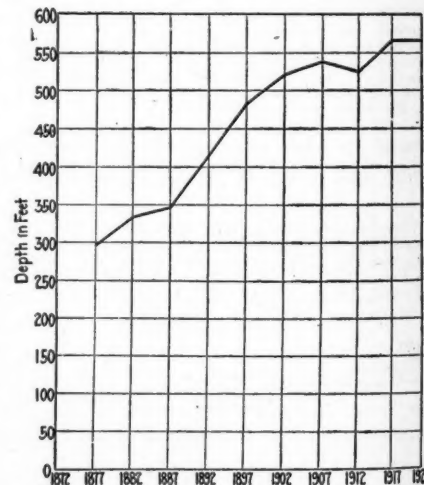


FIG. 29—INCREASE AVERAGE DEPTH OF NANTICOKE WORKINGS

Weighted average by 5-year periods is shown by this curve. The method of calculation is similar to that used in calculating the average depth under Figs. 3 and 5 in the first part of this article (*Coal Age*, Vol. 23, pp. 324-325).

TABLE XXV—NUMBER OF MULES AND LOCOMOTIVES IN NANTICOKE DISTRICT

	Number of Mules	Number of Underground Locomotives		Number of Mules	Number of Underground Locomotives
1877	750	.....	1902	2,257	13
1882	1,078	.....	1907	2,550	75
1887	1,544	.....	1912	2,168	151
1892	1,861	.....	1917	1,530	211
1897	1,960	.....	1921	1,630	330

age depth of workings was 230 ft. This figure was not used in plotting the curve.

The increase in depth during the period 1877 to 1887 was only 50 ft., or at the rate of 5 ft. per year, but from 1887 to 1907 the increase in depth was 194 ft., or 9.7 ft. per year. From 1907 to 1922 the curve levels out, showing a difference of only 27 ft. in 15 years, or 1.8 ft. per year. The total difference between 1877 and 1922 was 271 ft., or an increase in average depth of 92.2 per cent. If the unweighted average of 1872 is used, then this difference in depth would increase to 337 ft., or to 146.5 per cent.

Fig. 30 illustrates very clearly how the depth of workings increased, especially from 1887 to 1902. In 1872 no beds were mined deeper than 500 ft. and 45 per cent of them lay between the 200- and 300-ft. intervals. In the following 5-year period the maximum depth increased to 600 ft. and then almost every period showed an increased maximum depth until 1902, when the maxi-

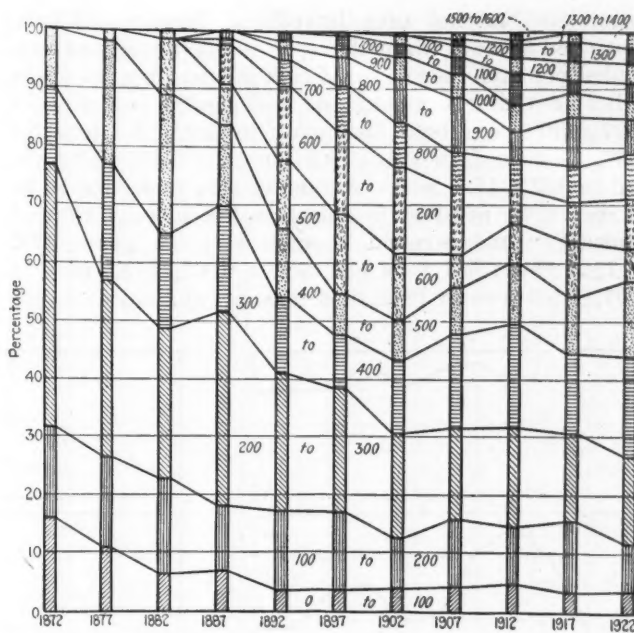


FIG. 30—PER CENT OF TOTAL NUMBER OF BEDS BEING WORKED IN EACH 100-FT. INTERVAL

A full description of the method used in calculating these percentages for the Nanticoke district, beginning with 1872 and by 5-year periods, will be found in the first installment of this article under Fig. 6 (*Coal Age*, Vol. 23, p. 325). The noteworthy feature is the almost steady increase in the depth of workings.

TABLE XXVI—TONS PRODUCED AND WEIGHTED AVERAGE DAYS WORKED IN NANTICOKE DISTRICT

	Tons of Coal Produced	Weighted Average Number of Days Worked		Tons of Coal Produced	Weighted Average Number of Days Worked
1877	2,042,630	150	1902	4,448,708	114
1882	3,702,621	234	1907	9,624,149	225
1887	6,181,958	240	1912	9,963,868	220
1892	5,502,946	203	1917	11,750,030	285
1897	5,665,252	147	1921	13,017,992	279

mum remained stationary at between 1,300 and 1,400 ft. Since then there has been no increase in depth except in 1912, when for a short period beds of coal were mined in the 1,600-1,700-ft. interval.

The curves in Fig. 31 tell the same story—as the depth increases the thickness decreases. Practically every interval shows that the average thickness of the beds has decreased and that the increase in depth has been steady until the most recent periods.

Nanticoke district development is steadily progressing—the depth of workings has almost doubled and thickness of beds has dropped more than one-third in the past 45 years. Power requirements naturally are greater, as is shown in Fig. 32 and Table XXIII. In 1877 for every boiler horsepower installed there was produced 1.75 tons of coal. In 1921 there was only 0.77 ton produced. Thus the decrease was 56 per cent. Expressing it inversely, in 1877 0.57 boiler horsepower

was required for each ton of coal produced per day, compared with 1.30 boiler horsepower in 1921.

This increase in power required has not been due entirely to the thinning out of coal beds. Greater depth, increased volume of water to be pumped and longer haulage have made power demands even greater than have the preparation plants which clean this thin coal.

Production increases naturally have had their reflection on power consumed. Table XXVI shows how great has been the increase in the production since 1872.

TABLE XXVIII—AVERAGE DAILY PRODUCTION OF INSIDE MEN

	Miners and Miners' Laborers	Miners and Miners' Laborers	Inside Company Men	Inside Company Men	Corrected for Time
	Actual	Corrected for Small Sizes	Actual	Corrected for Small Sizes	
1877	6.02	8.83	6.63	9.73	7.77
1882	3.73	5.28	7.72	10.95	8.76
1887	3.73	4.76	8.30	10.60	8.48
1892	4.17	5.13	7.14	8.77	7.02
1897	4.50	5.26	9.52	11.12	8.89
1902	4.99	5.34	8.07	8.64	7.15
1907	4.39	4.66	7.66	8.14	7.25
1912	3.96	4.11	7.98	8.28	7.39
1917	4.26	4.26	6.90	6.90	6.90
1921	4.04	4.04	7.12	7.12	7.12

In that year 2,042,630 tons of coal was mined in the Nanticoke district. In 1921 13,017,992 tons was produced. Of course all of this increase did not come from the deepest workings but depth in many mines registered on the power curve of many mines.

The length of haul has increased notably. This increase will continue with development work in many of the largest collieries for an extended period. Fig. 33 and Table XXIV show the haulage curve for the Nanticoke district. In 1877 the average haul was short and the output per mule per day high. As the haul lengthened the output per mule decreased and by 1892 it had dropped to 15.92 tons per mule per day. Then the curve mounted as the use of underground locomotives increased. This increase is shown by the number of locomotives per 100,000 tons per year.

It is reasonable to suppose that if the underground

TABLE XXVII—TONS OF COAL PRODUCED PER DAY IN NANTICOKE DISTRICT

	Total Men Employed	Corrected for Time	Corrected for Time	Inside Men Employed	Corrected for Time	Corrected for Time	Outside Men Employed	Corrected for Time	Corrected for Time
	Actual	Sizes	Time	Actual	Sizes	Time	Actual	Sizes	Time
1877	2.03	2.98	2.56	3.15	4.62	4.20	5.71	8.37	6.59
1882	1.66	2.36	2.07	2.52	3.58	3.31	4.91	6.97	5.57
1887	1.73	2.21	1.86	2.57	3.29	3.05	5.26	6.72	5.38
1892	1.79	2.29	1.89	2.67	3.22	2.95	5.62	6.91	5.52
1897	2.12	2.48	2.19	3.05	3.57	3.30	6.96	8.24	6.59
1902	2.17	2.32	2.07	3.08	3.30	3.06	7.45	7.99	6.61
1907	2.08	2.21	2.07	2.79	2.96	2.83	8.20	8.71	7.75
1912	2.05	2.13	2.01	2.65	2.75	2.64	9.15	9.50	8.46
1917	2.01	2.01	2.01	2.63	2.63	2.63	8.46	8.46	8.46
1921	2.02	2.02	2.02	2.58	2.58	2.58	9.43	9.43	9.43

locomotive had not been introduced there would have continued to be a slight decrease in the amount of coal hauled per mule per day. If this is true then the curve indicated that the amount of coal hauled per mule in 1897 might have been 15.6 tons; in 1902, 15.5 tons; in 1907, 15.4 tons; in 1912, 15.3 tons; in 1917, 15.2 tons, and in 1921, 15.1 tons. Assuming this reasoning to be correct it is possible to calculate the amount of coal hauled per underground locomotive in the years 1902 to 1921 thus: 581 tons per day in 1902, 142.3 tons in 1907, 115.3 tons in 1912, 96.6 tons in 1917 and 67.2 tons

in 1921. This shows that the output per locomotive is decreasing, and if it is decreasing then the power required to haul the coal is increasing.

This decrease in the production per locomotive is to be expected because when they were first introduced they were exclusively used on main-line haulage. Mules did the gathering. Now the construction of the locomotive has been so improved that with its cable-and-reel or with storage-battery power it can actually take the place of the mule and be used to gather coal. This reduced the number of tons per locomotive, however.

No underground locomotives were reported in use in 1897, but by 1921 they had increased in this district to 330 and the number per 100,000 tons output increased from nothing in 1897 to 2.36. In spite of the absence of inspectors' reports on them in 1897 it is quite likely that a few were in use, as the locomotive was introduced into the anthracite region in 1887.

In this district are the two largest anthracite operations in the world. These two collieries had a total output of 3,123,353 tons in 1921, or 21.1 per cent of the output of the district. There are four collieries in this district which had a total output of 4,207,908 tons in 1921, or about 32.3 per cent of the whole output. These collieries might well be classed as new operations and ones at which there is a great deal of development work being done. These four new operations naturally have a deep effect on the district statistics.

The lowest set of curves in Fig. 34 and the data from which they were plotted in Table XXVII—the first three columns—show the production of coal per day per employee. The curve plotted from the actual figures obtained from the mine inspectors' reports is the solid line. This curve, generally speaking, shows a decrease in the earliest period and then a rising production per man until 1902, when the line is level or tends slightly downward. If these figures are corrected for the small sizes of coal which were not shipped in the earliest years, then the dash line, which represents this correction, shows a decrease in the total output per man per day, but when corrected for the time factor, as is shown in the dot-and-dash line, then there is a downward swing to the curve for the first ten years and upward for the next 10 years, and from this point it becomes practically a straight line for the last 24 years.

On this curve in particular the influence of the four big collieries is shown. Being new operations and having modern equipment they are able to produce their coal with more

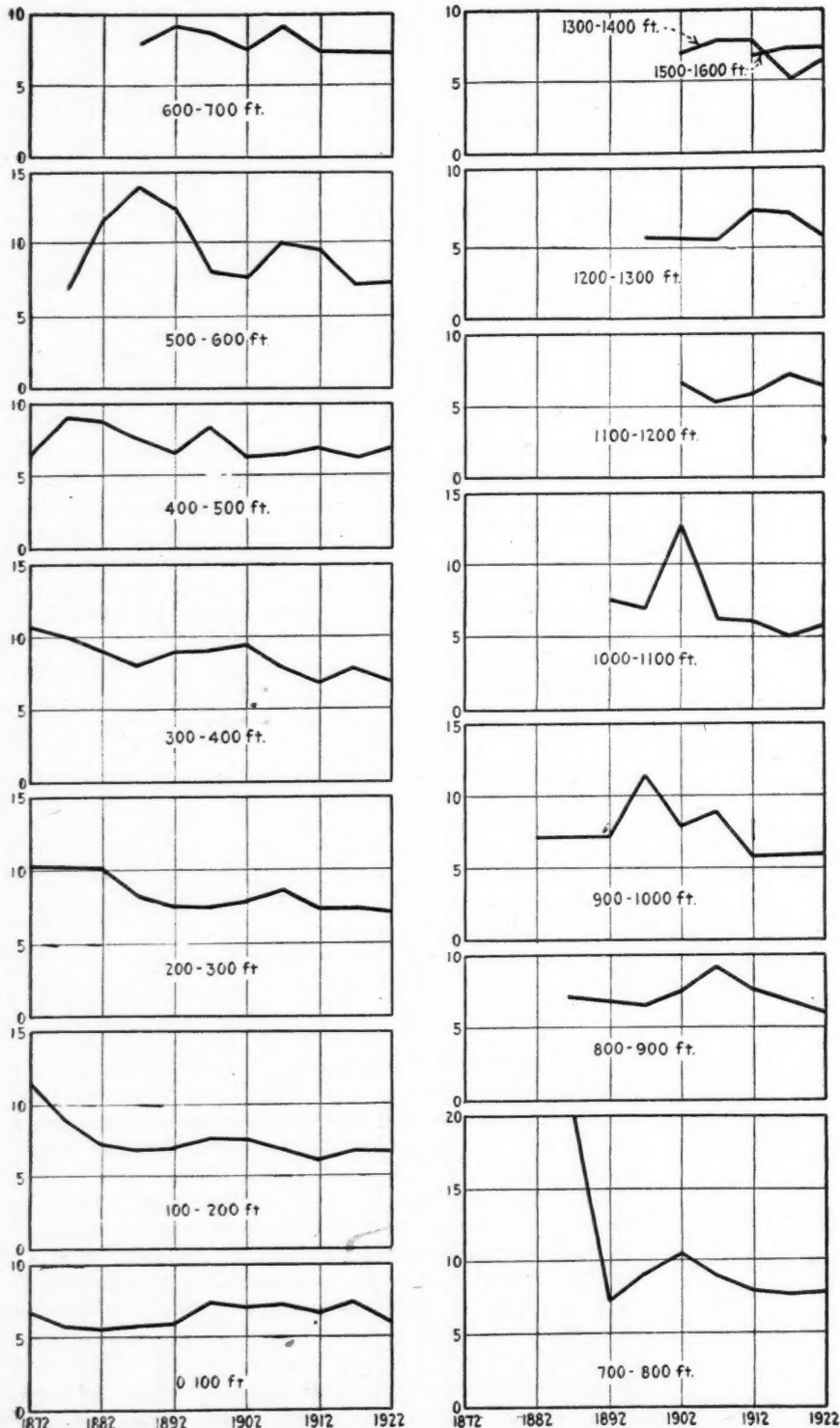


FIG. 31—SIMPLE AVERAGE THICKNESS OF BEDS AT EACH 100-FT. INTERVAL.

In the footnote under Fig. 7 in Part I of this series of articles (*Coal Age*, Vol. 23, p. 326) will be found a full description of the method of calculating these curves and the points that these curves bring out will be found in this text.

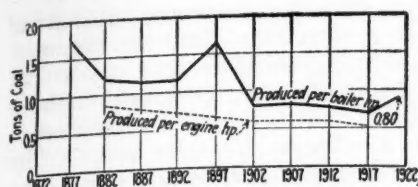


FIG. 32—NUMBER OF TONS OF COAL PRODUCED PER DAY PER BOILER HORSEPOWER

The calculation of the points on this curve and the sources from which the data were obtained will be found under Fig. 8 in the first of this series of articles (*Coal Age*, Vol. 23, p. 326).

by the curve. This indicates that great savings can be obtained at thoroughly modern equipped collieries. At another colliery in this district, old in years but new in the light of modern practice, the output per man per day is 2.22 tons, or considerably above the average for the district. This will be brought out more clearly in the detail curves that will be taken up later, and the reasons for this increased efficiency will be discussed.

The middle set of curves in Fig. 34 and the middle three columns in Table XXVII show the output per

efficiency than the older operations. If these collieries had been left out in calculating the curves, then in 1921 the output per man per day would have been 1.86 tons instead of 2.02 tons, as is shown

district. At this operation there is some stripping, which increases the output of the inside men per day, and, as will be shown later, decreases the output per inside company man per day.

The upper set of curves in Fig. 34 shows the number of tons of coal produced per day per outside employee. The figures from which this curve was plotted will be found in the last three columns of Table XXVII. Here, as usual, the whole tendency of the curve is upwards, with the exception of two periods, one in 1877 to 1882 and the other in 1917. The correction for the output of small sizes in the earlier years shows the same thing though less markedly. But the final corrections, which allow for both size and time, change the curve considerably. With the exception of the first two periods the curve is steadily upward.

In 1887 the output per outside man dropped to 5.38 tons per day, the lowest in history. In 1921 it attained 9.43 tons. This was an increase of 75 per cent. The explanation of this lies mainly in the performance of the same "big four" collieries. These collieries are modern in every respect. They have labor-saving devices and new and modern breakers which greatly reduce the man power required and correspondingly increase the output per man employed.

If the four collieries had been omitted from the calculations in 1921, then the output would have been 8.20 tons per outside man per day instead of the 9.43 tons shown by the curve for 1921. The fifth colliery shows an output per outside man of 10.73 tons. The increased output per man in this case is due to the consolidation of the surface plants and the preparation of the coal from what were five old collieries in one modern breaker.

In the lower set of curves in Fig. 35 will be seen the result of the work of the anthracite miner in the Nan-

TABLE XXIX—MEN EMPLOYED IN NANTICOKE DISTRICT

	Total No. of Employees	No. of Inside Employees	No. of Outside Employees	No. of Miners and Miners' Laborers	No. of Inside Company Men
1877	6,707	4,324	2,383	2,346	1,978
1882	9,504	6,286	3,218	4,237	2,049
1887	14,909	10,013	4,896	6,911	3,102
1892	15,125	10,303	4,822	6,497	3,806
1897	18,108	12,583	5,525	8,547	4,036
1902	17,898	12,657	5,241	7,817	4,840
1907	20,572	15,350	5,222	9,759	5,591
1912	22,072	17,120	4,952	11,437	5,693
1917	20,492	15,627	4,865	9,658	5,969
1921	23,075	18,124	4,951	11,560	6,564

day per inside employee. The solid line shows the actual figures obtained from the mine inspectors' reports. Here again there is a decreasing output in the first period, a steady increase until 1902 and then a decrease until 1921. But when this set of curves is corrected for the per cent in sizes of coal which were not shipped in the early periods, the dash line results and the curve slants downward. The same condition results when the dash line is corrected for the time factor. The dot-and-dash line is produced showing the final corrected figure of output per inside man per day.

Let us see what would have happened to the curve if the before mentioned collieries were not considered in its calculations. In 1921 the curve shows an output

of 2.58 tons per inside man, whereas if they had not been considered the output would have fallen to 2.40 tons per day. The old colliery with modern equipment shows an output of 2.81 tons per inside man per day, which is a considerable increase over the output of the

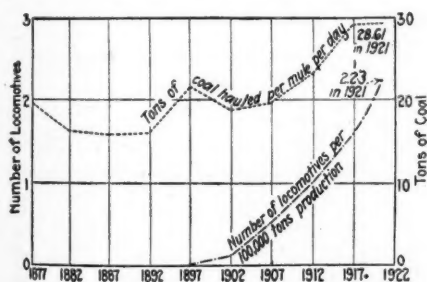


FIG. 33—TONS HAULED PER MULE PER DAY AND NUMBER OF UNDERGROUND LOCOMOTIVES PER 100,000 TONS

Table XXIV gives the points from which these curves for the Nanticoke district from 1877 were plotted and Table XXV shows the number of mules and locomotives in the district. The method used in making the calculations is described under Fig. 9 in the first part of this series (*Coal Age*, Vol. 23, p. 327).

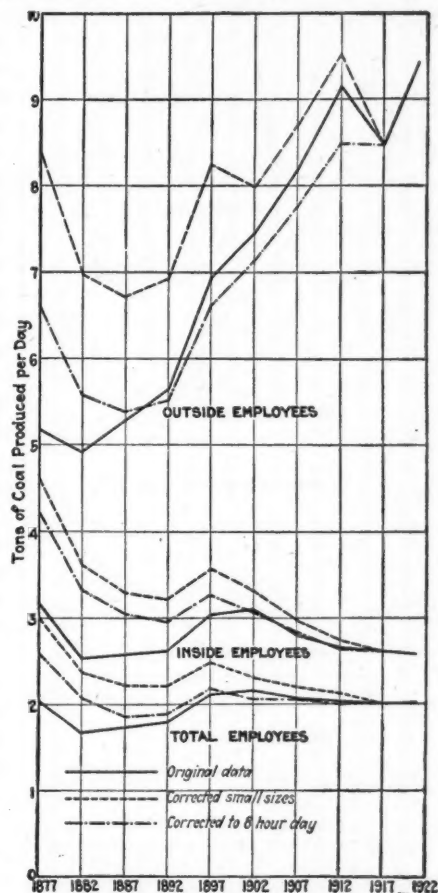


FIG. 34—AVERAGE DAILY PRODUCTION PER EMPLOYEE IN THE NANTICOKE DISTRICT, 1877 TO 1921

These figures were obtained from the mine inspectors' reports. The amounts represented by the solid line were corrected for the small sizes of coal not shipped in the earlier years and the dash line resulted. The dash line was corrected for the introduction of the 9-hour and 8-hour day for all employees except miners, resulting in the dot and dash line. The details as to the methods used and the amount of the corrections will be found under Fig. 10 in the first of this series of articles (*Coal Age*, Vol. 23, p. 327). The middle curves for inside men and upper curves for outside men are determined in the same way. Actual figures are in Table XXVII.

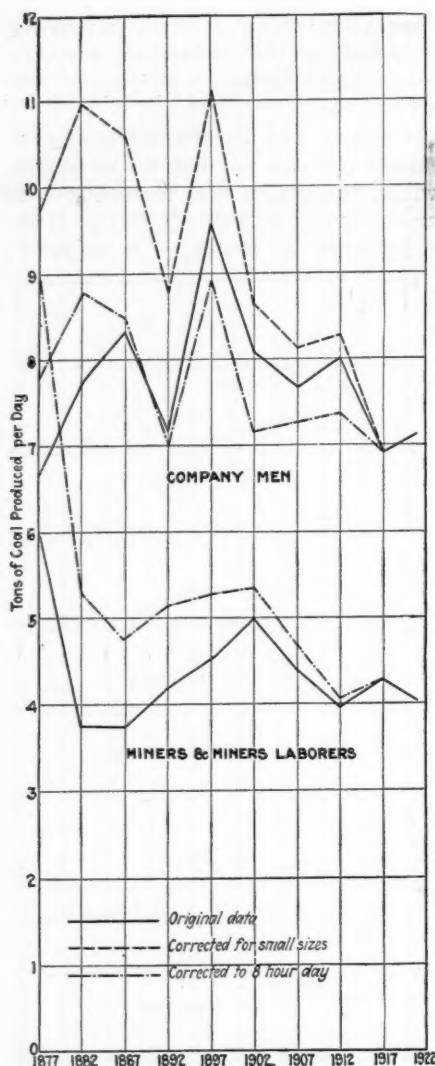


FIG. 35—DAILY PRODUCTION FOR INSIDE EMPLOYEES IN NANTICOKE DISTRICT, 1877 TO 1921

These curves are based on mine inspectors' reports and show corrections for the estimated amount of small sizes of coal that went into the culm banks in the earlier years and also for the introduction of the 9- and 8-hour day affecting inside company men. The method of making these calculations is explained under Fig. 11 in Part I of this series (*Coal Age*, Vol. 23, p. 328).

the last of the four reached its full output. With about one-third of the production coming from four up-to-date mines the production per miner and miners' laborer fell from 5.34 tons of coal per man employed in 1902 to 4.04 tons in 1921, or about 24.3 per cent!

This is difficult to explain. The bed thinned down only 14.8 per cent from 8.02 ft. to 6.83 ft. and a thinning bed is about the only physical factor that greatly effects daily output per miner. Since output increased 1.1 per cent from 1882 to 1902 while the average thickness of bed decreased from 10.24 ft. to 8.02 ft., or 21.5 per cent, and that in a period when little "modern" machinery was being introduced, it can only be concluded that miners then were more efficient than they are at the present time.

Even in the case of miners and miners' laborers had it not been for the four big collieries the output per man would have been as low as 3.80 tons in 1921, again demonstrating the fact that modern equipment and methods are bound to raise per-man output. Probably the haulage increases the output of men in the modern

collieries, for the fifth colliery of the outstanding group—one that had been modernized—shows an output of 4.28 tons per man, or 0.24 tons more than the district average. A better haulage system permits the miners to receive a better turn and therefore permits them to load more coal per day up to a certain point. This point of limitation of output will be explained in a later article.

Between this period and the one following, two of the four new and modern mines became large producers, in 1912 another one joined that class and in 1917

collieries, for the fifth colliery of the outstanding group—one that had been modernized—shows an output of 4.28 tons per man, or 0.24 tons more than the district average. A better haulage system permits the miners to receive a better turn and therefore permits them to load more coal per day up to a certain point. This point of limitation of output will be explained in a later article.

The upper set of curves in Fig. 35 and the figures in the last three columns in Table XXVIII show the change in the output of inside company employees per day, the heavy line being the actual figures as calculated from the mine inspectors' reports. This line was then first corrected for small sizes and the dash line resulted, then this line was corrected for the time factor, and the dot-and-dash line gives the final correction for the Nanticoke district.

If the doubtful 1897 figures are rejected as being in error and the average of 1892 and 1902 is taken in its place and then a curve is drawn for the average output per man per day, the curve will show a decided drop

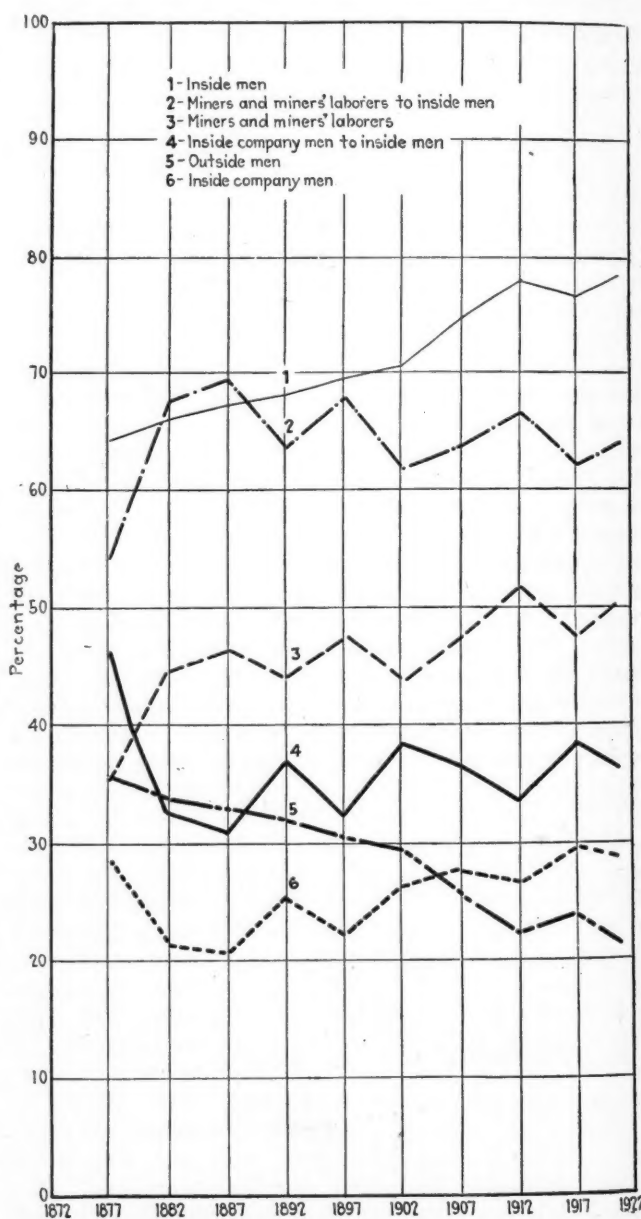


FIG. 36—PERCENTAGE OF EMPLOYEES BY CLASSES IN NANTICOKE DISTRICT

With the exceptions noted, the percentages shown are of each class to total men employed.

in the first three periods, but from then on it becomes practically level and there is no change in the output from 1892 to 1921. This is readily explained by the influence of the four modern collieries on the number of men employed. The equipment at these mines reduced the number and therefore increased the output of inside company employees. This was sufficient to counterbalance the loss in production per inside company

employee at the older collieries, thereby keeping the curve level.

The average daily output per inside company employee for the four companies mentioned is 9.62, 7.96, 11.21 and 7.56 for the year 1921, which is very much above the 7.12 average for the district. When these figures are weighted to obtain a true average they affect the totals even more. If they were omitted from the calculations in 1921, then the weighted average for the remaining collieries would be 6.49 tons per man per day, which is 0.63 ton per man less than the average for the district. Even the fifth colliery, which has been continually mentioned in this discussion, shows an output per man of 6.58 tons, which is less than the average for the district but is greater than the average would have been without the "big four" collieries.

Fig. 36 shows the relationship between the different classes of employees and,

as in the preceding diagrams of similar type in this article, the per cent of the inside men to the total men employed increases while the outside force decreases, which shows that the savings in men employed is in the outside force.

It is interesting to compare the new collieries in the Nanticoke district with old ones that have been modernized. Previous to 1897 these modern operations did not exist. Two were started then with comparatively small tonnages. It was not until 1907 that they became large producers. The third colliery became a large producer in 1912 and the fourth in 1917.

The curves in Fig. 37, on the production of coal per day per total men employed, show that the output per day has steadily increased from 1912 to 1921, while for the district there has been a steady decrease. True the decrease was small, but if these four collieries had not been included it would have been much greater. The increase in production at the modern collieries was 0.45 ton per man, or 21.5 per cent.

The curves for inside employees show that in the earlier years the average for the district was greater than for the new collieries. This is to be expected and is readily explained by the fact that large numbers of men were used for development work

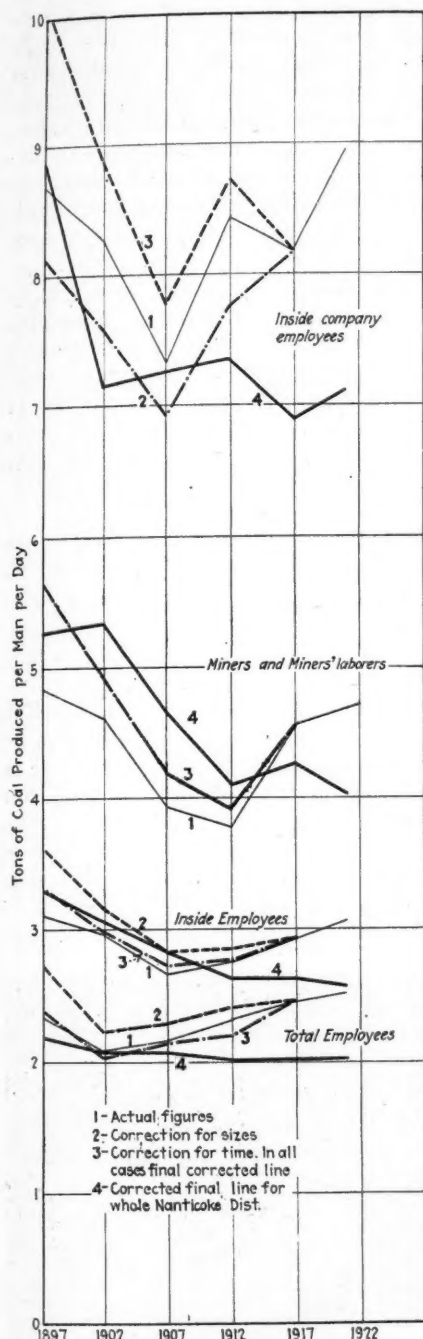


FIG. 37 — COMPARISON OF LABOR STATISTICS AT FOUR MODERN COLLIERIES WITH THE DISTRICT AVERAGES

The light solid lines are actual figures for the collieries, the dash line the correction for sizes and the dot and dash line the correction for time. In the case of the miners and miners' laborers it shows the correction for sizes only. In every case the dot and dash line is the final corrected line and the comparisons drawn in the text are between this line and the heavy black line, which is the final corrected line for all of the collieries in the district. This diagram covers all except the outside employees, for which see Fig. 38.

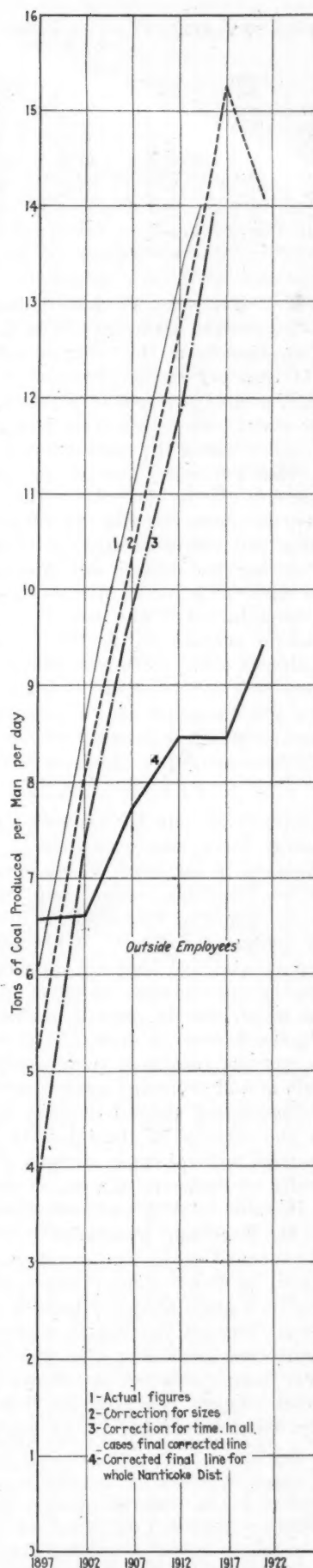


FIG. 38 — OUTSIDE LABOR AT "BIG FOUR" COMPARED WITH DISTRICT AVERAGE
Continuation of Fig. 37

TABLE XXX—PERCENTAGE OF GIVEN CLASSES OF EMPLOYEES TO TOTAL EMPLOYED

	Inside Men	Outside Men	Miners and Miners' Laborers	Inside Company Men	Miners and Miners' Laborers (a)	Inside Company Men (a)
1877	64.3	35.7	35.5	28.8	54.4	45.6
1882	66.1	33.9	44.6	21.5	67.5	32.5
1887	67.2	32.8	46.4	20.8	69.1	30.9
1892	68.0	32.0	43.0	25.0	63.1	36.9
1897	69.5	30.5	47.5	22.0	67.9	32.1
1902	70.8	29.2	43.7	26.1	61.7	38.3
1907	74.7	25.2	47.5	27.2	63.6	36.4
1912	77.8	22.2	51.8	26.0	66.8	33.2
1917	76.3	23.7	47.1	29.2	61.8	38.2
1921	78.6	21.2	50.1	28.5	63.8	36.2

(a) Percentage to inside employees.

inside. But when production began to mount the two curves crossed each other in 1912, and from then on the production from the modern collieries increased from 2.74 tons per inside employee in 1912 to 3.05 tons in 1921, or 13.8 per cent in 9 years, while the average for the district decreased from 2.74 to 2.58, or 5.8 per cent. In other words the production of the modern collieries is 18.2 per cent greater per inside man than the average of the district. The miners' and miners' laborers' curve in Fig. 37 shows practically the same thing and the same explanation applies to it.

During development numerous extra men are required on construction and other work about a colliery. This is brought out in the ascent in the curves for the production per day for inside company employees, which is the top set of curves in Fig. 37. Here while development was at its height there was a decrease in production per man, and then when conditions became normal the production increased. In this case it increased from 6.95 tons in 1907 to 8.96 tons in 1921, or 28.8 per cent.

SAFETY OF THE EXCELLIGHT—Writing to *Coal Age* George Stern takes exception to certain remarks which appeared in the issue of Jan. 4 as to the foolproofness of the Excellight, which lamp, he says, has been tested by the Board of Fire Underwriters, the report of which he quotes as follows: "This appliance is so designed and constructed that its ordinary use will not cause ignition of explosive mixtures of gases or vapors with air which may be present in the atmosphere surrounding the device. A study of the design and a consideration of the results of the dropping tests show that the bulb is well protected against accidental breakage. The explosion test showed that the operation of the switch or the removal of the top with the switch in the 'on' position will not cause a spark of sufficient intensity to ignite an explosive mixture of gasoline vapor and air."

He adds: "Although tests have never been conducted on the Excellight to determine how it would stand up in mixtures of explosives or vapor, when the bulb is shattered, we do not think it necessary to make a statement that it is not a foolproof lantern, and for these reasons: First, because the bulb is protected by a heavy wire-reinforced glass door $\frac{1}{4}$ in. thick; second, because tests have been conducted by dropping the Excellight from great heights on a concrete floor, with the result that the bulbs were never in the least damaged."

THOSE WHO THINK AMERICA can prevent massacres in Turkey forget that we can't even prevent massacres in Illinois.—*Norfolk Virginian-Pilot*.

LONDON DOCTOR SAYS BOLSHIEVISM is due to bad teeth. We knew there was something loose in their heads.—*Portland News*.

Sliding Coal Down a Hillside in a Tube

BY JOSIAH KEELY*
Kayford, W. Va.

FOR passing coal down steep sidehills the Cabin Creek Consolidated Coal Co. is using steel tubes at four operations and contemplates using several more whenever its older plants are remodeled. Some small mining companies are successfully using terra-cotta pipe in connection with a crusher for lowering coal down the mountain side, but in most cases it would be difficult to make a grade so uniform that the pipe could be placed on the ground. With terra-cotta pipe, trestles therefore would be necessary because the joints of the pipe are so short that they must have continuous support. Unfortunately, trestles are expensive and unsatisfactory. In any tube which is allowed to fill and stand for several days the coal tends to "set," and then it will not start without being jarred.

When a steel tube is used a few smart blows on its side will start the coal moving, whereas a terra-cotta tube probably would break under such a blow, and it would have to be a heavy jarring blow, for the material is such that it does not readily vibrate. In continuous operation a steel tube filled from bottom to top feeds nicely on a 33-deg. slope, but if it is left standing full for several days the coal in it has to be started. In cold weather the tube must not be left full.

The Cabin Creek company is using four steel tubes from 30 to 36 in. in diameter and from 100 to 220 ft. long, and they are placed on 33-, 36-, 37- and 40-deg. slopes respectively. A 33-deg. slope is just a little scant. An inclination of 35 or 36 deg. is about ideal where the run is as irregular as it is in the coal business.

I can see little difference in the way gas and splint coal run through a steel tube. The first installation at the Cabin Creek mines was on a 36-deg. slope, and it carried gas coal. Believing the splint coal would run more freely, we tried 33 deg. on a 220-ft. tube. The coal feeds perfectly after it has started, but, as before mentioned, it will not start from rest without assistance after lying in the tube a few days.

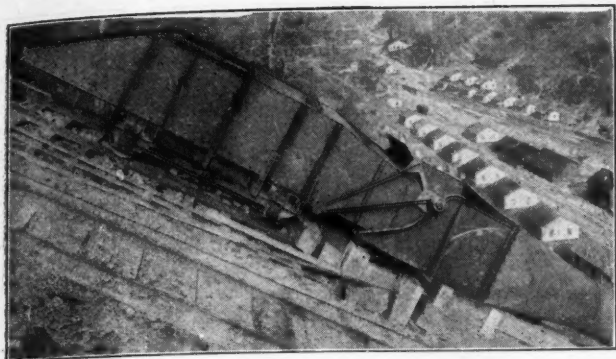
Even where minimum breakage is desired, I can see



LOADING TUBE FOR MONITOR ON INCLINE

Unfortunately this hill was for the most part on a grade of only 25 deg., which was too easy for the use of a tube. The top and bottom were steeper and so it was possible to provide a loading and a receiving tube, the former being 104 ft. long.

*General manager, Cabin Creek Consolidated Coal & Coke Co.



RECEIVING TUBE AT FOOT OF INCLINE

This tube is 220 ft. long and lies at the bottom of the incline illustrated above. The device of the full tube, altogether apart from the monitor, is gaining favor wherever it can be used, as it causes little breakage of the coal, certainly less than with an open chute. Furthermore the upkeep is light and a degree of storage is provided to balance operation. No coal is spilled as it is where cars are lowered down an incline; there are no wrecked cars and, of course, if the tube is continuous so that monitors are not needed, no wrecked monitors either. The only trouble is in the morning during the winter when the tube must be filled. This filling breaks the coal badly.

no reason why coal could not be handled 500 ft. through a tube laid on the proper grade, but that grade would have to be sufficient and absolutely uniform. If the incline has an average slope sufficient for the carriage of the coal it is easy to provide for laying the tubing on a uniform grade, for it is of $\frac{1}{4}$ -in. steel and in sections about 20 ft. long put together with flanges. It consequently is easily rolled into position, and when bolted together will span an opening of 40 ft., though it is better practice to support it every 20 ft.

As compared with grading an incline, the expense, of course, is moderate, and in order to keep the tube on the ground one can afford to excavate much material. This grading is so much narrower than for the usual double-track incline that the yardage need not be one-third as great. The tube will cost about \$11 per foot on board cars at the mine. It is desirable to install the man hoist beside the line of the tube. Where this is done sections of tube can be pulled up on wheels and rolled right into place. If concrete piers are placed every 20 ft., the flanges can be set against and above the piers, thus preventing any tendency to slip. These piers need not be more than a foot thick at the top and 2 ft. wide.

If a tube is used for the lower end of the plane, with a monitor dumping into it, it is desirable to make a telescopic joint of the first section, so that the thrust from a runaway monitor will not be communicated to the whole tube. If the tube is of considerable length it is important to have the lower end so arranged as to meet the shock of coal which is first dumped. Later dumpings, of course, cushion on the coal in the tube. There are several successful feeds for taking the coal away, but perhaps the most satisfactory is a reciprocal feed in which the hopper is never allowed to run empty, thus forming a protective cushion of coal at all times.

Of course, the steel tube eventually will wear out, but any sections showing wear in the bottom may be unbolted and given a quarter turn, thus presenting a new wearing surface. The practice of buying expensive machinery for lowering coal down short, steep grades seems theoretically unsound when gravity is there to do the work, but a common mistake is to assume that bituminous coal will act like anthracite when being fed down a slope. The problem should be carefully studied before attempting to install a gravity tube for the lowering of bituminous coal, but there is no reason

why, under the right conditions, the tube should not be the simplest means of achieving that object.

One other advantage of the tube is the storage it provides, especially if it is a steam coal and breakage is no item. Almost every hillside bin designed for receiving coal from monitors will receive in practice only one-half its rated capacity, whereas with a tube and a receiving plate slightly elevated, coal may be shot up to the roof of the bin, and, without such a device the coal will pile up higher than from a monitor.

The accompanying illustrations show an operation capable of handling 6,000 tons a day, the monitor shuttling back and forth between two tubes and receiving and discharging its load automatically. In this operation both top and bottom of the hill are steep enough for tubes, but the space between is on a grade of only about 25 deg. The human element has to be taken into consideration, for if the men either at the top or at the bottom allow the tubes to get empty the breakage is excessive.

It is a splint-coal operation, however, and with little care the coal slides in a mass from the car into the upper tubes, from the tube into the monitor and from the monitor into the lower tube, entailing scarcely any breakage. When the lower tube is full, the monitor simply does not empty until the feeder draws out some of the coal; thus the tippie boss can control the situation by stopping the feed if he suspects that the men at the top are allowing the upper tube to become empty.

Of course, in a gas-coal operation the only consideration would be the wear and tear on the equipment, which would be much less if the tubes were kept full until the end of the run.

P. & R. Develops and Protects Forests

The forestry bureau of the Philadelphia & Reading Coal & Iron Co. further extended its road and trail forest protection system during 1922, so that at the end of the year it contained 130 miles of lanes or strips specially prepared to stop forest fires when the need arises. While 130 miles of such avenues of resistance to the onrush of burning forests is insufficient to control fires in this region, each year additions will be made until eventually every 250 to 500 acres of forest land owned will be blocked off or broken up by a protective strip represented by a road, trail or fire lane. In order effectively to protect the forests, the land area has been divided into fifteen divisions or ranges and a man placed in charge of each, with responsibility for the thorough protection of the forests placed in his care. To assure results consistent with the effort made, forest owners must have the co-operation and interest of every citizen.

In furtherance of the full use of land that can be safely protected from fire the company during the year planted 70,000 Scotch pine, 5,000 Norway spruce, 14,000 Japanese larch, 1,000 hard maple, 10,000 white ash, and 10,000 white pine. Arrangements have been made to reforest 140 acres with 166,000 trees of the following kinds during 1923: Japanese red pine, European larch, red oak, white ash, Japanese larch, Norway spruce, Oriental sycamore, pitch pine, rock oak, Austrian pine and Western yellow pine. While many of these trees are not native to the anthracite region, they have been tried out in Pennsylvania, and are expected to thrive with care and public interest in their protection.

In order that trees best adapted to this region may be grown to restock protected areas, a small forest tree nursery has been developed. This year more than 90,000 seedlings will be ready for transplanting, and in a year or two sufficient for the entire needs of the company will be available.



BY ALPHONSE F. BROSKY*
Pittsburgh, Pa.

THE operation controlled by the Elkhorn division of the Consolidation Coal Co. consists of fourteen mines centered around Jenkins, Ky., and is larger than any similar institution in the eastern part of that state. The towns of Jenkins, McRoberts, Burdine and Dunham and the adjacent mines lie in Letcher County, which is in the southern part of the state not far from the border of Virginia.

Jenkins, the largest town, lies at the foot of Pine Mountain on the Sandy & Elkhorn Branch of the Baltimore & Ohio R.R., and on either end are the towns of Dunham and Burdine. About four miles northwest and across a mountain is the town of McRoberts, which is located on the Lexington & Eastern extension of the Louisville & Nashville R.R., the junction point being Jackson. Its importance in that section is only second to that of Jenkins.

ELKHORN DISTRICT ONLY RECENTLY OPENED

These two railroads, which were extended into the Elkhorn district only a few years ago, opened up a vast coal-producing territory within the limits of which lies the Hazard field. Between Hazard and McRoberts many mines have been opened up recently on the branches leading from the Louisville & Nashville R.R.

Prior to 1911 what few operations had been opened in the Elkhorn district had been confined to a few mines along the Big Sandy Division and the Marrowbone Branch of the Chesapeake & Ohio R.R. The mines on the latter branch, which produce a coking coal, are in a territory adjoining the Elkhorn district, lying at the headwaters of Elkhorn Creek (a tributary of the Big

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NOTE—Headpiece shows village of Jenkins, Ky., seen from Raven Rock looking northwest in the direction of McRoberts. Elkhorn Lake, lying to the east, is an artificial lake which condenses the exhaust steam from the central power station, the energy generated in which operates the mines of the Elkhorn and Millers Creek divisions and a few mines adjoining these near McRoberts. It will be noted that the valley of Elkhorn Creek to the north of the lake curves around like a hook. Burdine lies in this hook and Dunham is located several miles to the east.

Building a Town for a A Glimpse of Jenkins

Largest Operation in Elkhorn Field
Before Coming of the Railroads—
Ground—Park and Lake Features of

Sandy River) and the headwaters of the North Fork of the Kentucky River.

The history of Kentucky as a coal-mining state, however, commences with the western field of the state and dates back to Civil War days. But so rapidly have the districts of eastern Kentucky been developed in the last ten years that in that time they have progressed further than has the western field in its half century of history. Production figures of the State of Kentucky

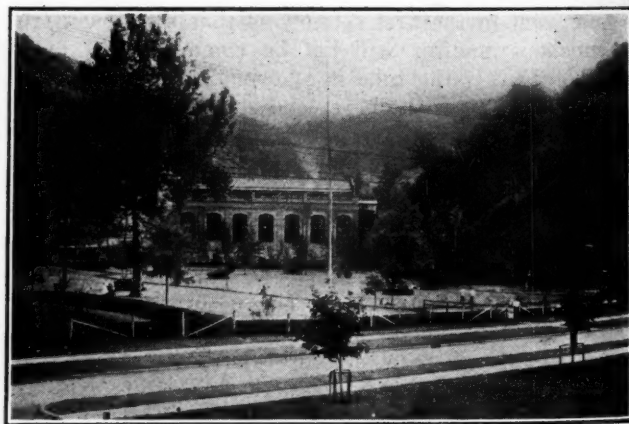
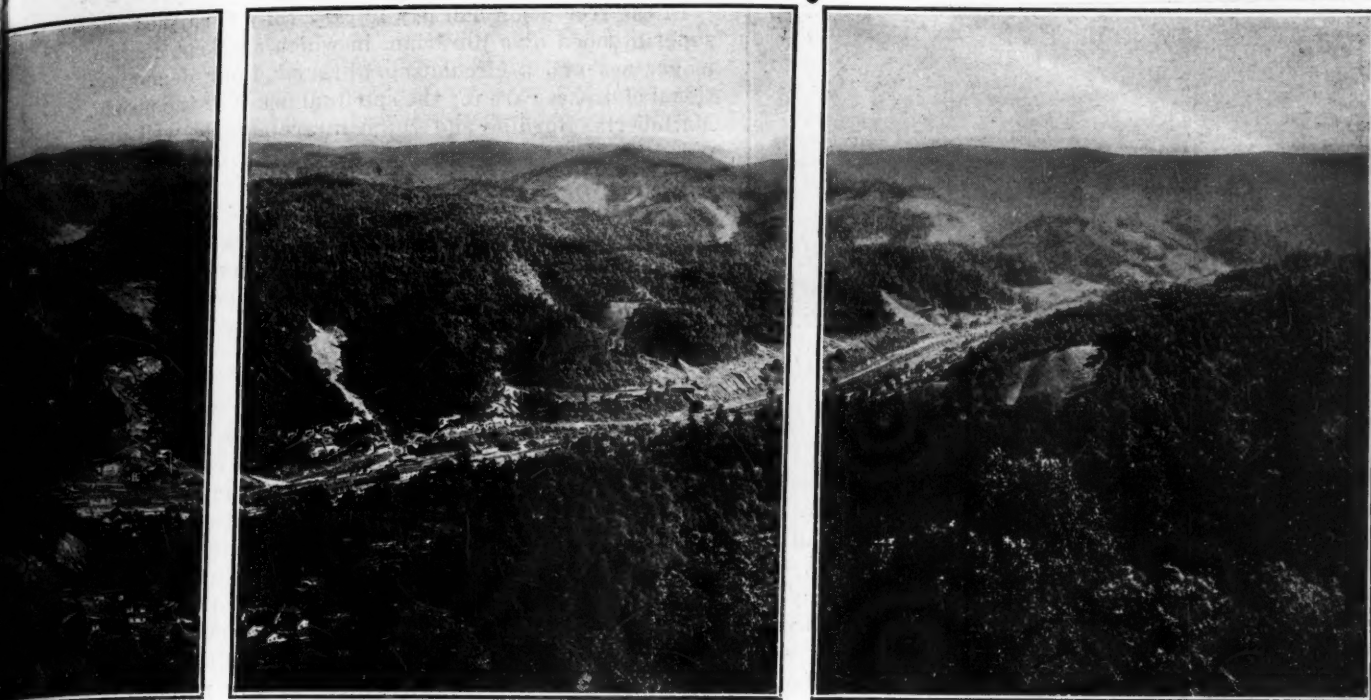


FIG. 1—PUBLIC PARK AT JUNCTION OF ELKHORN AND LITTLE ELKHORN CREEKS

The roadway in the foreground, which is the main street of Jenkins, is paved with concrete and has concrete sidewalks and curbs. Grass is laid out between curb and sidewalk as in the better residential portions of our larger towns and cities. The building in the rear is the company's main power station.



Mountain Community; and Nearby Villages

—Towns and Plants Were Erected
Lumber and Brick Prepared on the
Jenkins — Dwellings Painted White

for the year 1921 shows that approximately 75 per cent of the total tonnage came from the seven districts in the eastern end of that state.

Before railroads had penetrated into Letcher County the Consolidation Coal Co. procured approximately 100,000 acres of coal land in that region. In April, 1921, the Elkhorn district was opened up, its development being followed later by that of other districts. Jenkins and the other towns adjacent to it sprang up in a wilder-

ness, yet at that time they were eighteen miles from the nearest railroad and situated in a dense forest broken only by a few clearings each with its solitary log cabin.

The Consolidation Coal Co. was the pioneer of the district. Though the lack of railroad facilities was a severe handicap, it was regarded as only one of the obstacles to be encountered in developing a mining region and, accordingly, all work went ahead on a large scale. The early history of the development of the Elkhorn holdings of this company are scarcely less instructive and perhaps more interesting than the details of the property as it is today, so engrossing are the reminiscences of the oldtimers who are still on the job.

At first all materials, supplies and machinery were hauled from Hellier, the nearest point on the Chesapeake & Ohio R.R. Many delays due to bad roads made imperative other transportation arrangements. As a result, connections were completed from Norton, Va., on the Norfolk & Western R.R., by extending a narrow-gauge log tram between Glamorgan and Pound to a point half way up Pine Mountain on the Virginia side.

Here a freight terminal was established and the wagon haul shortened to four miles. To see twenty teams of oxen harnessed to a large boiler or other heavy equipment was no uncommon sight in those days. Over this route were hauled most of the materials used at the mine—food, machinery and supplies of all kinds—in fact everything from the pins and needles sold at the store to the heavy 100-hp. boilers required for the temporary power houses at the mines then being opened.

One of the first acts in construction was the erection of sawmills and later of planing mills. Practically all the lumber used in construction was cut and prepared on the property. The manufactured lumber was placed in drying kilns and made up into material for the houses which were started shortly afterward. Brick of an excellent quality was manufactured on the ground in two plants constructed for the purpose.

Just as soon as information and data were obtained by the engineering staff, drifts were opened and entries

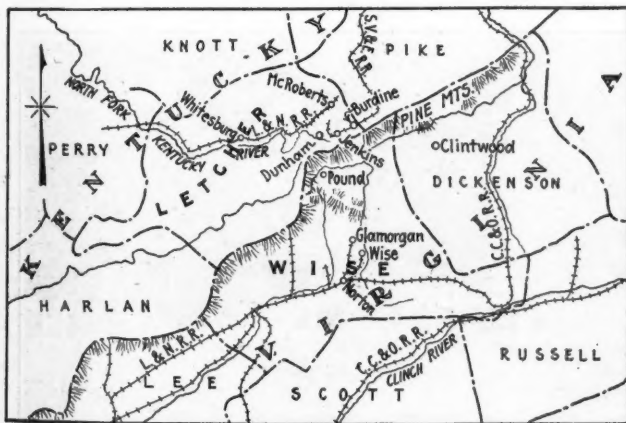


FIG. 2—LETCHER COUNTY, KENTUCKY, AND ADJACENT COUNTRY IN THAT STATE AND VIRGINIA

McRoberts and Jenkins, the two important centers of the Elkhorn Field are separated by a mountain—that shown in the panorama above. Consequently they are approached by two entirely different railroad systems, one reaching the Ohio at Cincinnati and the other at Catlettsburg, Ky.

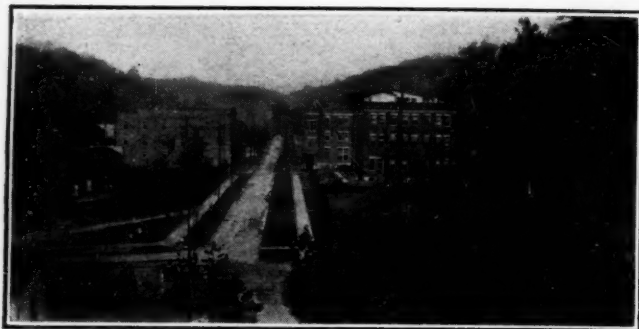


FIG. 3—MAIN STREET, JENKINS, KY., LOOKING EAST
The ground in the right foreground is the public park. Behind it is the office building, and further beyond the recreation hall. Across the street from the latter is the general store. The greensward between curb and sidewalk adds color and beauty to the village.

driven by pick mining. At the same time work commenced on the construction of tipples, so that by due diligence in July and August, 1912, practically all the mines on the tributaries of the Baltimore & Ohio R.R. were ready to ship coal. That obtained from early development was stored on the surface until the railroads were completed. Mines on the McRoberts side were advanced to this stage about a year later, as the Louisville & Nashville R.R. was completed about at this time.

Among the problems that confront a company in the construction of an isolated mining operation are those of holding disease in check and maintaining the law. At that time "shooting scrapes" were by no means rare about Jenkins, for there were a few "bad men" to perpetrate trouble. Hazard in its day and Lynch later were faced with this difficulty.

Jenkins as it stands today is a town of real beauty, especially when viewed from Raven Rock, a bare sandstone formation to the west of the town. The villages nestled in a deep valley where the monotony of green is broken by white houses, mine buildings, roads and a condensing lake of fair size on the bank of which stands a large power house.

MORE LIKE A SUBURB THAN A MINING TOWN

The main street of the town is concreted and separated from the sidewalks by plots of grass almost as wide as the street itself. These park plots are broken up at intervals by narrow walks from the sidewalks to the street, and the people of the town are prohibited from tramping down this grass, which is conditioned and kept mowed by the company.

This main street, which begins at the public park, has no residences on it. The office building (the headquarters for the Elkhorn division), the recreation hall and the department store, all of which are of brick, stand on three corners in the center of the town. To the side of the office building is a public park inclosed by a box hedge and brightened by flower beds and trees. In one corner of the park is a rustic shelter house; on the side farthest from the street stands the central station of the company and behind that lies a large artificial lake.

A large school building of brick, to which a big wing now is being added, fronts the main street. In this structure are housed a grade school and a high school, affording an elementary education as thorough as that obtainable in any large city, for the course of study includes manual training for the boys and domestic science for the girls. Night classes are conducted in mining, mechanical drawing and other subjects.

In the recreation hall is a library fully furnished and superintended by a librarian, in which are kept current magazines and a circulating library. Four denominational churches care for the spiritual needs of the people. McRoberts, Burdine and Dunham are equally well provided in these ways, though necessarily on a smaller scale.

Swinging from the main street past the power house and the park is the Lake Shore, which skirts Elkhorn Lake and leads to the residences of the company officials. A few of the homes and a large clubhouse are built overlooking the road and lake; other homes are located on a parallel street behind the road.

All the houses along the lake side are of the bungalow type and have an individuality of plan possible only where the lumber is prepared and sized on the ground. The homes of the officials have all modern conveniences, and the miners' dwellings have as many improvements as have been found practicable. These latter dwellings are of many types of construction and built for one or two families. The company favors the single-dwelling type, but limited building space compelled it to erect double houses also. The apartments of the double houses contain either four or five rooms each, while the single dwellings are provided with three or five rooms.

BIG LAKE PROVIDES AMPLE CONDENSING WATER

At the junction of Little Elkhorn and Elkhorn creeks, where the power plant is situated, a concrete dam 45 ft. high was erected across a narrow valley forming Elkhorn Lake, which covers an area of 18 acres with a storage capacity of 80,000,000 gallons of water. It is used primarily for the condensing of the exhaust from the power station, but has been well stocked with fish for the benefit of local rodmen. Bathing and boating are permitted, an unusual feature in a mining town. Without a large artificial basin for the storage of water a central station cannot be operated in this mountainous country where the streams are small and swift with a tendency to dry up in the summer months.

There are 1,600 houses in Jenkins alone. These are constructed of oak, chestnut and poplar, these trees covering the mountains when the town was erected. Most of the houses are plastered, though a few are lined with beaver board. Fifty per cent of the houses are provided with sinks. The company will furnish any house with a sink if the tenant so desires.

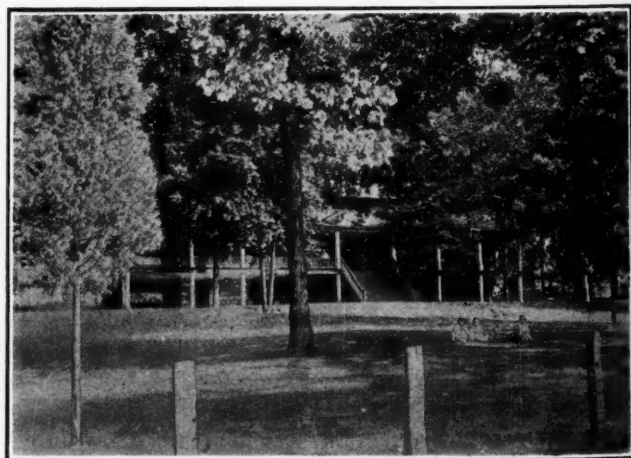


FIG. 4—CLUB HOUSE AT JENKINS ON THE LAKE SHORE
This is fitted for the reception of about forty persons. The company laid its plans well in advance, as is shown by the fact that the grounds of this club were not disfigured by the ill-considered zeal of the lumbermen.

With the main body of the houses painted white, the color scheme of the trimmings is varied by interchanging four dark colors. Every four or five years the houses are repainted. In few places can houses profitably be painted white, for it can be done with any hope of continuance only where the air is clear of smoke and injurious gases. White paint should be used only in places far removed from the industries which produce much smoke.

Most of the lots in which houses are built are fenced in, for it has been found that the occupant feels a sense of responsibility only when his property is thus defined and protected. At many mining towns phases of community betterment are short-lived. This is not the case in isolated villages such as Jenkins, where vegetable and flower gardens have been planted each year with no apparent waning of interest. Prizes are offered for the best vegetable gardens, the prettiest flower gardens and the most attractive places.

A certificate of award accompanies the bestowal of each prize. The official photographer of the company photographs the prize-taking subject, and these are included in the official albums of the company. The company plows all lots and furnishes manure; it also sup-



FIG. 5—MINERS' DWELLINGS AT NO. 202 MINE, DUNHAM

Far from the smoke of industrial furnaces and making little smoke itself, the Consolidation Coal Co. has been able to paint its houses and fences white, thus giving its villages an air of cleanliness and light.

plies trees, vines and shrubbery to those who ask for them, at a cost just great enough to check wanton requests for this favor.

The greater part of the water supply at Jenkins is obtained from a spring in a limestone formation on the west side of Pine Mountain. The water, which, of course, is of temporary hardness, is stored in a concrete reservoir of 1,000,000 gallons capacity. It is conducted in a 6-in. main to houses and hydrants at intervals for protection against fire. The main supply is augmented by water from deep wells, which contains much iron, making it unpleasant for household use. To remove the temporary hardness from the spring water and the iron from well water, milk of lime is used, which makes the water clear and of excellent quality. Coming from springs and wells it always is cool and potable. All towns in the division are furnished with filtered water which either is piped to the house or to hydrants conveniently located.

Due to its excellent water supply and its attention to details of sanitation, the division has never had an epidemic; occasionally several cases of disease may make their appearance, but they always prove to have been brought in from the outside. Jenkins proper is equipped with a complete sewerage system which empties into Elkhorn Creek below the town and is flushed at regular

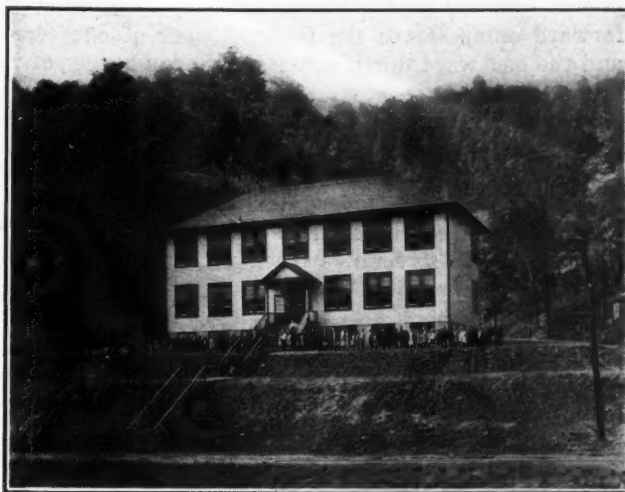


FIG. 6—SCHOOL HOUSE AT McROBERTS, KY.

Elementary and high schools are both provided even in the smaller mining villages of the Consolidation Coal Co.

intervals by means of an automatic flushing apparatus. Garbage and rubbish are collected weekly, hauled to an isolated hollow and burned. The management does not depend upon its people to provide containers for garbage; each house is furnished with a garbage can, and each town has its garbage wagon.

St. Bernard Mining Co. Has Tipple Making Thirteen Sizes and Size Groupings

BY R. G. LAWRY
Chicago, Ill.

MOST recent among the operations of the St. Bernard Mining Co. is that known as the North Diamond Mine. This plant opens up a new coal territory and is the first complete mining installation made by this company for several years.

Extensive drilling and an unusually careful study of the general mining problem preceded the location of the shaft and the development of the new property. The size of the shaft was made to conform to the size of the mine car which the St. Bernard Mining Co. is adopting for all its mines, the expectation being that when finally the old cars in use at the nine mines of the company go to the scrap heap, they will all be replaced by cars of the new standard.

In deciding the design of the screens and the tipple, the sales department of the company made a careful study as to the sizes of coal the market would be likely to demand, and after considering the experience of the past and anticipating the needs of the future drew up a schedule of the sizes for the approval of the higher officials of the coal company. Only when this had been done were the engineers allowed to proceed with the design of the tipple.

This building at the North Diamond Mine has a steel frame covered with galvanized corrugated iron. The tower of the tipple is of the end-pull type, but is turned about 74 deg. from the usual position occupied by this kind of tower, the screening machinery being placed to one side. Although this design is unusual, it is a convenient arrangement for the style of equipment used.

The cars are hoisted in Olson cages and dumped at the top into a weigh hopper which serves both cage-ways. This weigh hopper has a double-bottom dump with gravity doors and is hung on 15-ton suspension scales with a quick weighing dial. The weigh hopper

dumps into the feeder hopper in such a way that the forward dump serves the feeder hopper of one screen and the backward dump serves the feeder hopper of the other screen. It is only necessary for the weighman to alternate the dumps. This is no trouble, for should he, by mistake, dump too often to one side, no harm would be done. By opening the door in the inside part of the feeder hopper the backward dump of the weigh hopper delivers unpicked run-of-mine to a chute which carries it along to the screenings track without the operation of any machinery.

Each feeder hopper is equipped with a reciprocating feeder driven by two ball-faced, babbitted eccentrics which have an adjustable stroke by means of which the feed to each screen can be regulated. Each feeder is driven by means of a belt from a line shaft and can be thrown in or out of gear by means of a friction clutch. The screens also, which are of Marcus type, are driven each by the line shaft of its own feeder, this line shaft in each case being actuated by a 30-hp. slip-ring motor. The drive of the screen is controlled by a friction clutch.

Each of the two screens is 5 ft. wide and designed to handle run-of-mine coal at the rate of 200 tons per hour. Over each screen is a trough on which pickers place the refuse. This trough extends over the run-around track at the end of the tippie and delivers the refuse to a wood bin from which it is loaded into wagons and used for filling around the property.

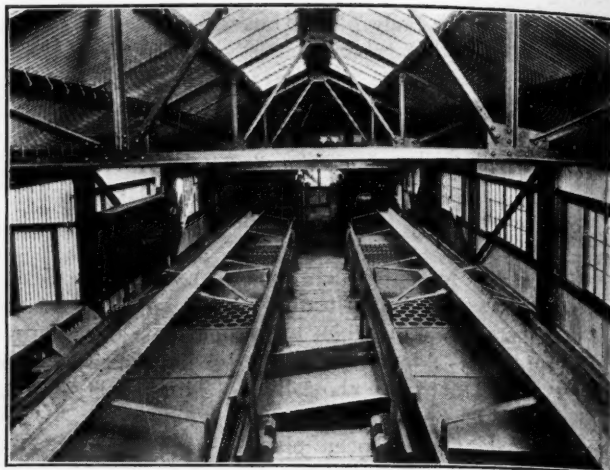
Each screen has circular perforations of four sizes, the diameters of which are $1\frac{1}{2}$ in., 2 in., 3 in. and 5 in. Thus five sizes are made when lump coal is considered. Provision having been made for the mixing of various combinations of the different sizes, thirteen distinct size combinations and sizes of coal can be delivered. For instance, on the screening track can be loaded two sizes

of screenings and run-of-mine coal; on the nut track, two sizes of nut coal; on the lump track four sizes of lump coal and picked run-of-mine coal. These are the sizes for which the coal company has made provision.



SIDE ELEVATION NORTH DIAMOND MINE, ST. BERNARD MINING CO.

The unpicked run-of-mine chute passes to the outside of the building and can be seen on the left. The hoist house instead of being alongside the railroad track is up the hill a trifle and thus removed about 74 deg. from the usual position. The sized coal is loaded by shaker loading booms which have rescreens through which the fine coal passes. This is collected in a screw conveyor and delivered to the screenings track.



SCREEN ROOM OF NORTH DIAMOND TIPPIE

Each screen and its feeder is operated by a 30-hp. slip-ring motor. The coal in passing from the rear ground to the foreground passes over perforations of $1\frac{1}{2}$ -in., 2-in., 3-in. and 5-in. diameter, leaving the smaller sizes at each screen. The refuse is picked off and placed in the trough and travels toward the foreground like the coal.

However, other sizes can be made without changing the size of the screen plates. By changing the sizes of the perforations, of course, any size or combination of screened coal can be made.

The screenings are delivered to the car by means of a hopper which collects the coal from both screens and delivers it at one point. At the bottom of this hopper is a swinging undercut gate which will stop the flow of coal while a loaded car is run out and an empty placed in position for loading.

The nut coal is collected from two gates on each screen and delivered to a shaking chute. All this nut coal then passes over a rescreen section in the chute which removed the fine coal. It is then loaded into the car from a fixed chute with a hinged extension which furnishes a lower loading point for small cars.

Both the egg and lump coals are loaded over shaker loading booms. These booms collect the coal after it is delivered from the screen and rescreen it over a section of perforated plate. The shaker booms have a pivoted section which lowers to a point near the bottom of the car when the car is empty and gradually runs up until the car is topped out. If the operative uses care, the shaker boom can be kept close to the load so that no breakage will result from the dropping of the coal.

The fine coal rescreened from the lump and egg booms, and the nut rescreen are collected in a screw conveyor and delivered to the screening chute. The screw conveyor carrying the degradation is driven by a separate direct-connected motor. Each loading boom and the nut shaker chute has its own motor. All light and power wires are carried in iron conduit, adherence being given throughout to the requirements of the National Underwriters Code. The controls for all the motors in the tippie are placed on the side of the screen house at a point about over the nut track. This is a central point convenient to the pickers and also is handy for anyone coming up from the track by a stairway located on the side of the boom house. This tippie installation was designed and built complete by the Roberts & Schaefer Co., of Chicago.



MUCH interest has been centered this winter around the explosions in coal mines, some of which occurred at collieries where what are regarded as the best methods of assuring safety were stringently followed. Owing to these explosions new legislation is to be expected. All the dangers are not below ground nor are all of them due to the faults of individual employees. In some cases the management itself is largely, if not wholly, to blame, and perhaps in no particular is this more evident than in the handling of explosives, accidents from which, fortunately, have been fewer than could have been expected in view of the many risks run.

Mine Laws Lax on Handling and Storing of Explosives

Unless the mining laws of the states are made to specify what may and what may not be done in the handling of explosives we shall awaken one day to find a disaster on our hands. Then there will be a scurrying in the right direction. Ought we not to correct the evil now rather than wait till the lesson is taught us by the grim example of the loss of many lives?

To the operator in the Pittsburgh district a significant lesson was taught only recently, fortunately without any lives being lost to drive that lesson home. It will be well indeed if the bloodless but expensive accident by which the lesson was given will be successful in rooting out the many bad practices that prevail.

On the night of March 26 at the Superior mine of the Superior Fuel Co., near Pittsburgh, a magazine exploded containing about 225 lb. of permissible powder. Though the damage was slight, the thought of what might have been and the facts in the case are indeed alarming. With the demolition of the magazine, evidence of the cause was destroyed. Because the explosive was stored on a rack directly above a steam pipe

carrying exhaust steam it is thought by some that local overheating of the dynamite may have been the agent by

which the disastrous powder explosion was caused.

Others have suggested that the paraffin in the cartridge may have melted and dripped on the steam pipe, carrying with it small quantities of the highly inflammable ingredients of the explosive. These, it is suggested, burst into flame, then lighted an accumulation of similar material on the floor.

The force of the blast was severe enough to rock the countryside within a radius of three-quarters of a mile of the plant. Windows were shattered, and the populace of the town adjoining the mine was exposed to the danger of flying missiles.

Investigation has disclosed that the location and the general practices in the maintenance of the magazine were both needlessly hazardous. The magazine site lay not more than 50 ft. from the air-and-material shaft, where a fan electrically operated and a steam-driven standby unit were housed. This last unit, which lay the nearer of the two to the magazine, was wrecked; the auxiliary hoist room was demolished and the walls of the boiler room were partly ripped out on the sides nearest the magazine.

If this explosion had taken place about 7 a.m., when the miners were gathered around this shaft waiting to descend, few would have escaped death. If a few additional pounds of explosive had been stored here and the blast had occurred while the men were underground, both fans would have been destroyed, cutting off air to the workings. Then, also, the power plant nearby might have been incapacitated, in which case the main hoisting equipment would have been crippled for want of power, and the miners would have been trapped.

Summarizing the facts in this case we learn that:

(1) The magazine was located too near to the airshaft in particular and the mine plant in general; (2) the

NOTE—Headpiece shows the mine of the Superior Fuel Co. after the powder-house explosion which wrecked the fan and other surface equipment at that mine.

construction of the magazine was not according to specifications recommended by the U. S. Bureau of Mines or the makers of explosives; (3) care was said not to have been exercised to keep the interior of the magazine clean. It also is said that ingredients spilling from the explosive were allowed to accumulate on the floor over a period of years. Such material is highly inflammable, especially at the temperature which is believed to have existed. (4) Detonators were stored in the same compartment as the dynamite.

Where mining laws do not regulate certain features in operation the state mine departments are empowered to order that any dangerous condition be remedied. Any one of these listed will make storage of explosives unsafe, and one or more of these is known to prevail at many mines. Even in the states where there are no blanket regulations in regard to explosives why have

the state mine departments allowed such practices? It is time that all states enacted specific and detailed laws covering the location, construction and maintenance of magazines, as also the distribution and use of the explosives they contain.

The industry should go on record as recommending that these laws specify: (1) That explosive magazines be located in agreement with the American Table of Distances; (2) that the construction of magazines as regards design, material, heating, ventilation and barricading be in accord with recognized safe practice; (3) that the storage of detonators and dynamite in the same compartment be considered a penal offense; (4) that the attendant in the magazine perform his duties in accordance with rules prepared for his instruction; (5) that the distribution and uses of explosives be better regulated.

Made Over 2,100 Hoists in Eight Hours

BY CHARLES F. SHERMAN*
Peoria, Ill.

MANAGEMENT in hoisting is best shown not by the number of tons hoisted but by the number of hoists. In consequence the record made on Feb. 28 of this year at the Groveland Coal Mining Co.'s No. 2 mine, Peoria, Tazewell County, Ill., of 2,115 hoists in eight hours, or 264½ hoists per hour, is worthy of more than usual note even though the cars were of only 1½ tons capacity. The hoists were as follows:

Hoists		Hoists	
First hour	263	Carried forward	1,071
Second hour	263	Fifth hour	271
Third hour	243	Sixth hour	260
Fourth hour	302	Seventh hour	254
		Eighth hour	259
Total	1,071	Grand total	2,115

So far as I have been able to ascertain, this record exceeds all others hitherto made. The record, I believe, formerly was held by the Vermilion mine of the United States Fuel Co., near Danville, Ill., with 2,026 hoists.† The average hoisting period at the Groveland mine was 13.617 seconds, and at the Vermilion mine 14.215 seconds. It will be noted that during the fourth hour 302 hoists were made, or a fraction over five hoists per minute. This rate continued for 65 minutes. Every move on that day was timed with a stop watch and it was noted that in that 65-minute period 325 cars were

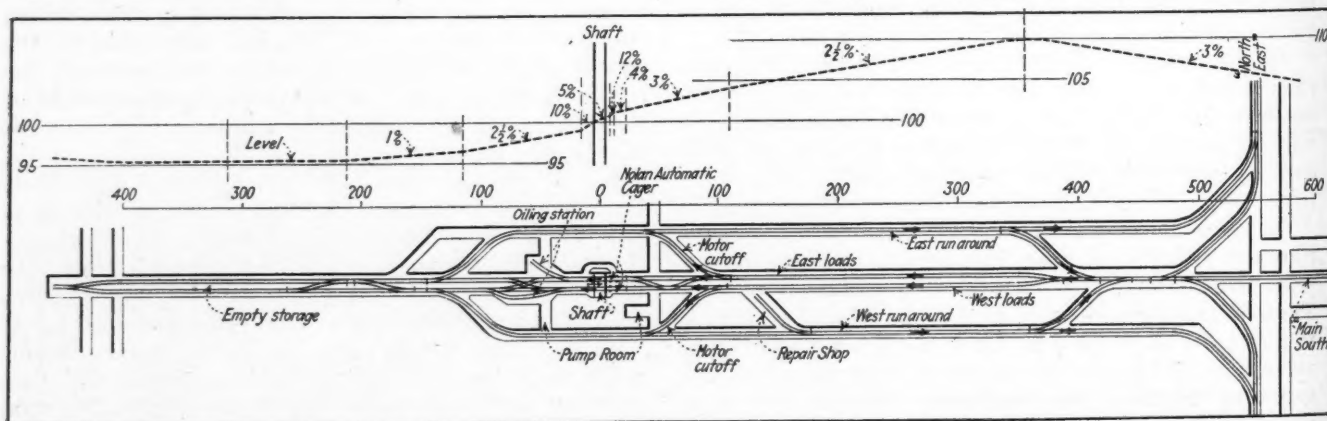
*General superintendent, Groveland Coal Mining Co., Peoria, Ill.
†4,858 tons.

hoisted. When it is known that the total hoist is 202 ft., that the cages weigh 3 tons, the cars 1 ton, and the coal approximately 1½ tons it will be realized that this is a remarkable record.

The Groveland mine is located at Peoria, Ill. Don Wills is mine manager and George Long and Grover Hooten are the hoisting engineers who made the record, alternating at the throttle every 30 min. during the eight hours. The mine is in No. 5 seam, which at this plant is 4 ft. 2 in. thick. It is operated on the advancing room-and-pillar system. The panel entries are driven 1,800 ft. apart, East and West Room Entries being driven north and south respectively. These room entries are driven at such a distance apart that a 420-ft. block of coal is left between them. The rooms are driven 200 ft. long, leaving a 20-ft. pillar at their ends. On each side of all main and panel entries a 75-ft. barrier pillar has been provided. The rooms are driven on 30-ft. centers, 24 ft. wide, leaving 6-ft. pillars.

The seam at this point is underlaid by about 12 in. to 18 in. of fireclay, and below this is 18 in. to 24 in. of iron band. Over the coal is an irregular black slate ranging in thickness from 24 in. to nothing. Above the slate is an unstratified clod which runs from nothing to 15 ft. thick. Above this clod is a sandrock 12 to 15 ft. thick and running in enormous rolls, sometimes lifting its lower surface 15 or 20 ft. above the coal and then immediately thereafter dropping to the very top of the seam.

This sandrock is completely saturated with water,



GROVELAND COAL MINING CO.'S CAGING AND DECAGING GRADES BY WHICH RECORD DAY'S HOIST WAS MADE

The grade on the cage is shown as 5 per cent. This, however, is reduced to 2½ per cent, as the text shows. Note the 12 per cent for 30 in. on the caging side and 10

per cent for a longer distance on the empty side. These grades were made as the result of experiment on the spot and were not merely good guesses of the engineering department. They are made to fit the caging conditions and the cars to be caged. Are your grades the best that can be devised for speedy caging?

causing the mine to be very wet. Water drips constantly from the roof, and twelve pumps have to be operated 24 hours per day.

The cars are gathered from the face by 50-in. mules and Welsh ponies which haul to inside gathering partings, from which they are transferred to the shaft bottom by electric haulage locomotives. The cars are caged with the aid of Nolan automatic cagers, and the cages are hoisted by a pair of direct-connected Crawford-McCrimmon 20 x 36-in. engines with a 6-ft. straight cylindrical drum. A Litchfield throttle is used to control the admission of steam to the cylinders. The engines are also provided with a Welch automatic overwind and overspeed device. The cages are equipped with automatically operating stop horns and rebound blocks of Mining Safety Device Co. type.

The actual caging time is exactly 2 seconds, the other 10 seconds being occupied by the movement of the cage. This extremely rapid caging time is made possible by a unique arrangement of grades on the track at the shaft bottom. These different grades were worked out and adopted only after many weeks of careful investigation made by changing the grades night after night and watching the performance of cars on them through the daytime, before the automatic cagers were installed.

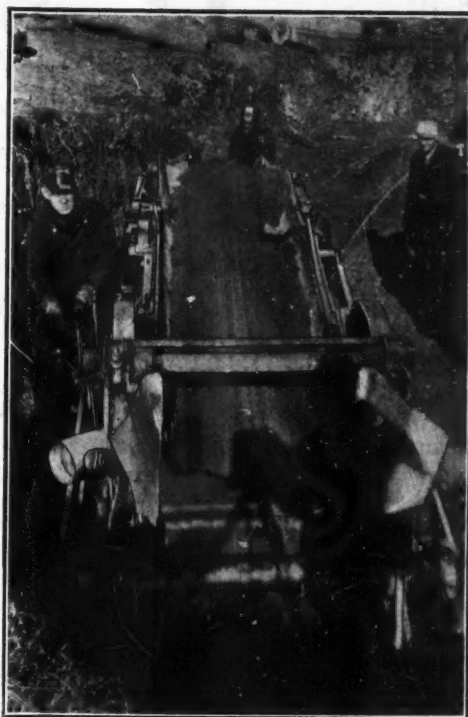
Then the automatic cagers were ordered made to specifications as to grades which we found would cage our cars in the shortest time possible. We first changed the grade on our cages from horizontal to 2½ per cent in favor of the loads. Then we adopted 42 in. of 5 per cent grade immediately approaching the cages. Behind this is 30 in. of 12 per cent grade on which the loaded car stands. Back of this is a 4 per cent grade past the crossover switches, and a 2½ per cent grade back of this. The empties drop off the cage onto a 10-per cent gradient, and then run away on a grade of 2½ per cent. As the hoisting tonnage depends entirely upon the rapidity with which the cars are caged and hoisted, months of thought and study were devoted to this question alone, and the record mentioned in this article is the result.

Mechanical Loader Excavates a Side Track

AT MINE No. 206 of the Consolidation Coal Co., Jenkins, Ky., a side track for empties had to be excavated in a bed of solid clay, the depth of the cut averaging 6 ft. Accordingly a crew of eleven men with picks and shovels were set to work to dig, load, tram and dump the material, but it was discovered that the picks made little impression on the clay and that dynamite was needed to dislodge it effectually. Even then, using fifty-four sticks of dynamite in a day of eight hours the eleven men could do no better than load out twenty-two 2-ton mine cars. Yet these men had no other duties than that of loading, tramping and dumping the spoil.

An old-type Halby shovel happened to be available and this was brought to the excavation. With its aid a crew of five men, comprising two men on the locomotive, which was kept in constant attendance, two tracklayers and one machine runner, could load forty mine cars of the clay in eight hours at a great saving in cost. With this shovel it was not necessary to use dynamite or powder to loosen up the clay.

This unusual application of the loading machine is significant, for it suggests that the coal loader has other useful applications than the loading of coal or rock at the working face. In the laying of outside track at a



EXCAVATING CLAY WITH LOADING MACHINE

Long before a mine is opened a loading machine has its uses in excavating on the surface. Sometimes, but rarely, a steam shovel is available at a mine to make the deeper cuts, but where it is not, a mechanical loader of the right type will do the work.

drift mine, in the construction of railroad tracks, in the preparation of sites for buildings, in the digging of new stream channels, in the making of village roads more or less grading has to be done which, in the past, for want of a better method has been accomplished by pick and shovel. The saving that may be effected by using a mechanical loader may go a long way during the construction period to defray the first cost of the machine itself.

New England Anthracite Receipts

	(In Net Tons)		
	Tide	Rail	Total
1922			
January.....	114,000	361,000	475,000
February.....	206,000	551,000	757,000
March.....	337,000	757,000	1,094,000
April.....	201,000	277,000	478,000
May.....	42,000	135,000	177,000
June.....	34,000	111,000	145,000
July.....	48,000	85,000	133,000
August.....	43,000	51,000	94,000
September.....	71,000	144,000	215,000
October.....	304,000	604,000	908,000
November.....	355,000	658,000	1,013,000
December.....	305,000	677,000	982,000
Totals 1922.....	2,060,000	4,411,000	6,471,000
1923			
January.....	324,000	684,000	1,008,000
February.....	*286,000	*673,000	*959,000

* Subject to revision

New England Bituminous Coal Receipts

	(In Net Tons)		
	Tide	Rail	Total
1922			
January.....	805,000	532,000	1,337,000
February.....	1,081,000	753,000	1,834,000
March.....	1,407,000	879,000	2,286,000
April.....	936,000	322,000	1,258,000
May.....	800,000	148,000	948,000
June.....	812,000	117,000	929,000
July.....	831,000	112,000	943,000
August.....	1,079,000	174,000	1,253,000
September.....	1,611,000	689,000	2,300,000
October.....	1,420,000	792,000	2,212,000
November.....	1,107,000	694,000	1,801,000
December.....	1,107,000	600,000	1,707,000
Totals, 1922.....	12,996,000	5,812,000	18,808,000
1923			
January.....	1,248,000	604,000	1,852,000
February.....	*1,383,000	*664,000	*2,047,000

* Subject to revision



Problems of Operating Men

Edited by
James T. Beard



In the Wake of the Explosion at Nanaimo, B. C., Canada

Brief Survey of Conditions — Carelessness, Indifference or Ignorance of Fireboss Cause of Disaster Rather Than Failure of Lamp

IN THE issue of *Coal Age*, Jan. 25, p. 184, there appeared an interesting article written by Mr. W. H. Moore, Manager, Wakesiah Mine, Western Fuel Corp., Nanaimo, B.C., entitled, "The Relative Safety of Safety Lamps under varying conditions." Mr. Moore gives some details of an explosion in the Wakesiah mine, which caused the loss of two lives, a fireboss and a fellow workman, and states what he believes was the probable cause of the explosion.

According to Mr. Moore's account, the fireboss went into a working place that was idle owing to the presence of a highly explosive mixture. For the purpose of removing the gas, he used a compressed-air jet, under a pressure of 90 lb. per sq.in., which gave the air an estimated velocity at the nozzle, say between 2,000 and 3,500 ft. per min. Mr. Moore seems to think that the cause of the explosion, was this highly explosive mixture coming in contact with the fireboss's safety lamp, which was the standard Wolf type, approved for use in gaseous mines.

LAMP FOUND IN PERFECT CONDITION AND LATER WITHSTOOD FOUR SEVERE TESTS

This lamp was found, after the explosion to be in perfect condition and properly assembled. The gauzes and glass were undamaged. Later, in the lamproom, the same lamp withstood a severe test, being exposed to an explosive mixture four times in succession without failing. Close examination of the inner gauze, showed signs of intense heat, which was not apparent on the outer gauze.

Thirteen men, including the fireboss, were in the mine at the time of the explosion. Eleven of these men were on the intake side of the air-current, or outby from the point where the explosion occurred, while one was on the return side from that place. The fireboss, who was found in the place, where the explosion occurred and the workman on the return side were both killed; but the other eleven men, working on the intake side, escaped without injury.

CARELESSNESS OR LACK OF KNOWLEDGE CHARGED

From the description given by Mr. Moore, it is evident that while coal dust may have contributed to the explosion it did not, in my opinion, contribute to the propagation of the explosion, which seems to have traveled with the ventilating current. Assuming that this "highly explosive mixture" was ignited at the Wolf lamp carried by the fireboss, there would seem to have been

a certain amount of carelessness, indifference or lack of knowledge on his part.

The practice of blowing out explosive mixtures with compressed air is not to be commended, any more than that of brushing out an accumulation of gas with a piece of brattice cloth or a coat. The fireboss's lamp was found a distance away from where he lay; and I would infer that he must have placed the lamp on the floor where it was exposed to the explosive mixture driven out by the air blast. That the lamp became heated is not at all surprising.

TESTS HAVE SHOWN UNDER WHAT CONDITIONS ALL TYPES OF LAMPS WILL PASS FLAME

The fact that a safety lamp will pass flame when heated is nothing new. Numerous tests made with every type of safety lamp have proved that under certain conditions of velocity, temperature, position of lamp, and with certain percentages of methane and dust, the flame of burning gas within the lamp will pass through the protecting gauze to the outside atmosphere.

If as Mr. Moore states this Wolf lamp gave signs of having been heated to such a point as to pass flame, it must be that the average temperature of the mine was very high, or there was a high percentage of methane traveling in the air-current. An ordinary Davy lamp, that withstood a current velocity of 307 ft. per min., with 4.5 per cent of methane, failed in the same current when a very small amount of coal dust was added.

Not only did the lamp pass flame, in that instance, but it did so without the gauze becoming as hot as would be required were no dust present. Again, a Clanny lamp, found comparatively safe when held in a vertical position, failed easily when tilted sideways, even with a small flame.

SMALL LAMP FLAMES CLAIMED TO BE PARTICULARLY DANGEROUS IN GAS

In his pamphlet on safety lamps, No. 3, Marsaut states, "It is especially with small flames that the lamps failed." Every mining book we read emphasizes the importance of exercising care in the use of the safety lamp, protecting it against sudden rush of air, high velocities and keeping it in an upright position.

One point seems quite evident; namely, there was no great velocity of air traveling at the working face, or it would have been unnecessary to have used the compressed air to blow out the gas. The fact that this was done while a man was working in the return current from the place, is certainly bad mining practice, and should be prohibited by the rules of the Wakesiah mine as it is by the rules at other mines in British Columbia.

Referring to the four successful tests, made in the lamproom after the lamp was recovered from the mine, Mr. Moore does not state the kind of gaseous mixture used in those tests, or whether the tests were made in a chamber, where the velocity was equal to that to

which the lamp was exposed in the mine. Nor does he say whether coal dust was present in the testing chamber, such as would very likely result in a working place when an air pressure of 90 lb. per sq. in. was turned on, giving a velocity of from 2,000 to 3,500 ft. per min.

WOLF LAMP HELD IN HIGH ESTEEM

The Wolf lamp is used extensively both for lighting and testing purposes. It is generally regarded as a most excellent lamp. The lamp has been tested in air currents measuring 3,600 ft. per min. and containing 9 per cent of methane and found safe when properly handled. The lamp may develop weakness when not held in a vertical position, and, in this case, being on the floor, it may have been tilted at a considerable angle. It appears to me that, under the conditions described, the lamp does not seem to have failed, as much as the fireboss to whom it was entrusted.

Regarding Mr. Moore's plea for some other and safer means of testing for gas, allow me to point him to the Burrell gas detector, which has given good satisfaction wherever used. In the mines of the Crow's Nest Pass, the Burrell detector is in general use, though it cannot be said to have superseded the Wolf safety lamp for making a rapid determination of the condition of the mine atmosphere. Admittedly, it takes more time to determine the percentage of gas, in the mine atmosphere, with the Burrell device, than with the Wolf safety lamp, but the results in the use of the former, are more accurate and more satisfactory than with the latter.

IMPROVEMENT IN METHODS OF TESTING FOR GAS WILL INSURE INCREASED SAFETY

Mr. Moore's idea of having the fireboss use a twin-bulb electric head lamp, with switch to extinguish the light while making a test for methane with a Wolf safety lamp having its flame set low to prevent the overheating of the lamp, may not prove as satisfactory as expected, in view of the statement previously quoted from the pamphlet of Mr. Marsaut, claiming a lesser degree of safety in small flames in the lamp.

In common with Mr. Moore, I trust the time is not far distant when we can improve on the present means of detecting methane, and developing methods that will insure a plentiful supply of pure air sufficient to dilute and render harmless inflammable and noxious gases in our mines. In the meantime, we can all find some assistance by following the rules laid down in the Mines Act, which require an adequate amount of pure air that shall be made to sweep the face of every working place.

If this is done it will not be necessary to use compressed air to dislodge explosive mixtures, and will at the same time, lessen the dangers surrounding the use of the safety lamp. I would, also, emphasize the idea of more education and less legislation. If this fireboss had received proper instruction in regard to how he must handle his safety lamp, and had followed those instructions, this accident could have been avoided. In our own narrow mining sphere, we have safety blocks that are left open, which makes them a source of danger, instead of being a means of safety. Some time ago we had a "Safety explosive" that turned out to be safe only when used under certain conditions. We have had safety lamps now for many years; but these have only been safe in the hands of capable men who have handled them properly.

GLEN CALDER.

Fernie, B.C.

Circulation in Safety Lamps

Observation in testing often deceptive—Gas-charged air may appear to enter at top of lamp—Study of conditions shows this is not natural.

REFERRING to the inquiry of Francis Devlin, *Coal Age*, Feb. 8, p. 260, in regard to the question of where air and gas enters the lamp, in making a test for gas in the mine, let me give a little of my own experience with safety lamps, covering a period of 46 years.

During that time I have handled all kinds of safety lamps, both in England and in this country, having worked mostly in mines where lamps were required. For a while I was under the same impression as my friend correspondent in *Coal Age*. Like him, my observations led me to think that the gas-charged air entered the top of the lamp whenever the test was made of a thin layer of gas at the roof.

EXPERIENCE OFTEN TEACHES THE FALLACY OF OUR WRONG CONCLUSIONS

For some time this was my full belief, but later experience showed me that such conclusion was wrong. Even assuming that the Wolf or the Koehler is the type of lamp used, as stated by the correspondent, I have no hesitation, now, in saying that the gas and air enter the lamp through the lower portion of the gauze or at the ports of entry below the flame.

To assume that the air and gas enter the top of the lamp and flow downward toward the flame is contrary to a clear understanding of the laws regarding the circulation of air. For that reason, I consider such a proposition as an impossible one, in the ordinary use of a safety lamp in mining practice.

With the editor who has replied briefly to this inquiry, my experience has taught me that the best results are obtained, in testing for gas with a safety lamp, when the circulation within the lamp is wholly ascensional, the air and gas mainly entering the ports of entry below the glass and passing upward and out through the top of the gauze chimney.

IF PORTS OF ENTRY ARE OBSTRUCTED BELOW SOME AIR MAY ENTER ABOVE THE GLASS

There are, of course, many conditions and I do not deny that a small portion of the gas or air may enter the lamp through the lower part of the gauze just above the glass, particularly if the lower ports of entry are at all obstructed, a condition that frequently happens in the use of the lamp in the mine.

By way of explanation let me state that in raising a safety lamp to the roof, under a thin layer of gas, it always happens that the gas is more or less disturbed by the movement of the lamp or the person. This causes the gas to mix with the air below and it is fed into the lamp through the regular ports of entry. The action is also assisted by the flow of burnt air outward from the top of the lamp.

In my experience it matters not how slowly you may raise your lamp toward the roof, the thin layer of gas there will be disturbed by the movement of the lamp and the rush of heated air from the top of the chimney. I recall that, on one occasion when testing for small quantities of gas in a certain place I knew was generating gas, my first test was made at the highest point in the place but gave no cap on the lamp. This seemed strange to me, as I had gotten a cap in that place earlier in the day.

After a moment's thought, I blew a gentle whiff against the roof, with the result that a cap at once showed on the lamp. I notice this method of getting a cap from a thin layer of gas at the roof is mentioned by the editor in his reply. He has also explained to my satisfaction the result of the test made by this correspondent, as being due to the rapid diffusion of the gas into the air so diluting the mixture that no gas cap was formed.

W. DICKINSON.

Bay City, Mich.

ANOTHER LETTER

NO DOUBT the question asked by Francis Devlin, *Coal Age*, Feb. 8, p. 260, regarding the way gas enters a safety lamp when making a test in the mine, has been asked by more than one fireboss. To tell the truth, it is a matter that set me to thinking many times during the twenty years that I was firebossing in the mines.

It often happened that I had the same experience as that described by Mr. Devlin, when I would find gas in a small cavity in the roof. At such times the test seemed to show that the gas must enter at the top of the lamp. At least, that was my conclusion for a long time.

After thinking the matter over, however, and making a careful study of the laws of gases and air, I have

come to the conclusion that my first thought was wrong and the air that reached the flame of the lamp must enter further down where it would not be opposed by the upward rush of the heated air escaping from the top of the chimney.

PRINCIPLE ON WHICH SAFETY LAMPS ARE DESIGNED DEPENDS ON ASCENSIONAL CIRCULATION

One thing in particular that led me to this conclusion was the thought that if the gas did enter the top of the lamp in any quantity, it would become mixed with the products of combustion and change the composition of the mixture so that no cap would be obtained. I have used many kinds of lamps and will say that it makes little difference whether the test is made with a Wolf, Koehler, Mueseler, Marsaut, or the common Davy lamp.

The principle on which all of these lamps are constructed is to provide for a free ascensional circulation within the lamp, in order to secure the most advantageous results, both in the way of illumination and in the observance of the gas cap. Considering the tendency of heated air to rise, there appears to be no reason to think that any amount of air or gas would enter the upper portion of the lamp where it would have to contend against the upward draft caused by the heat of the flame.

GEORGE BOWKER.

West Frankfort, Ill.

Inquiries Of General Interest

Dimensions of Mine Ventilation Fan

Estimate Based on Required Volume and Water Gage—Diameter of Fan, Function of Gage and Speed—Width Determined by Air Volume

PLEASE give me the dimensions of a mine fan capable of producing 30,000 cu.ft. of air per minute and show at what speed this fan should be run and the horsepower required to operate the same. What water gage will the fan produce at this speed? What I am anxious to ascertain is the diameter and width of the fan to meet the conditions named.

Hawk Run, Pa.

WILLIAM KILPATRICK.

When estimating the dimensions of a mine ventilating fan it is absolutely necessary to know, not only the volume of air required to be delivered, but the water gage or unit pressure (lb. per sq.ft.) against which the fan must operate, as determined by the mine potential or the resisting power of the mine. At the same constant speed, a fan will deliver more or less air, according as the water gage is lessened or increased.

It is important to remember that the unit pressure or water gage, producing circulation in a mine is determined by the resisting power of the mine, which is better expressed as the "mine potential." It is determined by the ratio of the sectional area of the air passage through the mine, to the cube root of the rubbing surface. Or, the cube of the potential is equal

to the ratio of the square of the quantity of air in circulation to the unit of ventilating pressure.

The value of this mine potential remains constant for all speeds of the fan. Knowing the mine potential, the unit of ventilating pressure is found by dividing the square of the quantity of air required in circulation by the cube of the potential.

For example, a 6x10-ft. airway, 3,000 ft. long, has a potential of about 483. Then, dividing the square of the circulation by the cube of this potential and that quotient by 5.2, gives for the water gage required to produce 30,000 cu.ft. of air per minute in this airway—

$$w.g. = \frac{30,000^2}{5.2 \times 483^3} = 1.53, \text{ say } 1\frac{1}{2} \text{ in.}$$

In designing a fan for this circulation, the first step is to determine the peripheral speed, u (ft. per sec.) by means of the formula—

$$u = 47.26\sqrt{w.g.} = 47.26\sqrt{1.5} = 57.88 \text{ ft. per sec.}$$

Or $57.88 \times 60 = \text{say } 3,473 \text{ ft. per min.}$, which is the required peripheral speed to produce a circulation of 30,000 cu.ft. per min., against the given mine potential.

Now, it is possible to choose a fan of lesser diameter running at a higher speed; or to select a fan of greater diameter and run it at a lower speed. Some prefer a high-speed fan, which can be installed at a lower first cost, than a larger fan running at a more moderate speed. The latter, however, allows of a greater margin and permits of a greater increase of speed should the necessity arise for a large increase in air volume owing to any sudden emergency.

In the present case, it is possible to use a 10-ft. fan running at a speed of about 110.5 r.p.m.; or to employ a 6-ft. fan operated at a speed of 184 r.p.m. Either of these fans will yield the required volume of air, under a water gage of 1.5 in.

It is important to observe that as the mine develops, the water gage required to maintain the same circulation will increase in proportion to the increase in

rubbing surface, and the power must be increased in the same proportion. If the power remains constant, however, the increased water gage, due to the development of the mine will be accompanied with a corresponding decrease in the volume of air circulated.

Good mine practice requires maintaining a more or less constant mine potential, by splitting the air so as to increase the area of passage throughout the mine in proportion to the cube root of the increase in rubbing surface. This condition will maintain a practically uniform efficiency in the ventilation of the mine, the power, speed of fan, and volume of air circulated remaining practically constant. In a large development there is, of course, a limit to this condition, as the required air volume will naturally increase with the employment of more men and a larger coal production.

Examination Questions Answered

Examinations Under the Mine Act, Alberta, June, 1922

(Selected Questions)

QUESTION—A sample of dust from an underground road gives the following analysis: Moisture, 7.87 per cent; volatile matter, 20.30 per cent; fixed carbon, 35.93 per cent; ash, 35.90 per cent; 96 per cent of the dust passing through a 200 mesh. Give your opinion on the relative importance of the constituents and state your conclusions.

ANSWER—This sample of road dust was probably taken from a road in a bituminous mine. The high percentage of ash shows the admixture of fine shale or stone dust. The comparatively high percentage of moisture shows the effects of dampening the dust to prevent its suspension in the air current. The fine dust of the coal accumulated on the road has lost some of its volatile matter, while the percentage of fixed carbon has been decreased by the admixture of the incombustible shale or stone dust. The fact that 96 per cent of the dust passes through a 200-mesh sieve shows the need of taking extra precaution to prevent a dust explosion.

QUESTION—Explain fully the first, second and third laws relating to friction of air in mines and give an example by calculation illustrating each law.

ANSWER—In giving three laws relating to friction of airways, we will first assume a constant size and length of the airway. In that case, the unit pressure or water gage varies as the square of the velocity of the air current. For example, if a pressure of 5.2 lb. per sq.ft., or a 1-in. water gage will produce a velocity of 500 ft. per min., in a given airway, to double this velocity in the same airway will require $2^2 = 4$ times the pressure or water gage.

Again, for the same size or cross-section of an airway, the unit pressure or water gage varies as the length or rubbing surface of the airway. For example, if a given pressure or water gage will produce a certain velocity in a 6x10-ft. airway, 1,000 ft. long, twice that unit pressure or double the water gage will be required to produce the same velocity when the length of the airway has been doubled.

Again, assuming a constant size of airway or a constant cross-section and a constant unit pressure or water gage, the velocity of the air current will vary inversely as the square root of the length or rubbing surface of the airway. For example, if a given pressure will produce a velocity of, say, 300 ft. per min., in an airway of a given cross-section and four miles in length, the same pressure will produce a velocity of $\sqrt{4 \times 300}$, or 600 ft. per min., in an airway of the same cross-section but one mile in length. In that case, the first airway being four times the length of the second airway, the velocity in the second will be $\sqrt{4} = 2$ times that in the first airway, for the same pressure.

QUESTION—Find the diameter of an upcast shaft necessary to circulate 200,000 cu.ft. of air per minute, with a velocity of 10 ft. per sec.

ANSWER—A velocity of 10 ft. per sec., is $10 \times 60 = 600$ ft. per min. The required sectional area of the shaft is, therefore, $200,000 \div 600 = 333\frac{1}{3}$ sq.ft. The diameter of this shaft is, therefore, $\sqrt{333\frac{1}{3}} \div 0.7854 = 20.8$ ft.

QUESTION—If a ventilating fan is running at 100 r.p.m., with 3.75 in. of water gage and its speed is altered so that the gage reads 1.82 in., what will be the speed of the fan?

ANSWER—It is commonly assumed that the volume of air circulated by a fan varies with its speed, other conditions remaining unchanged. Then, since the unit pressure or water gage varies with the square of the quantity, the gage reading would vary as the square of the speed; or the speed will vary as the square root of the water gage. On this basis, calling the required speed of the fan x , we have—

$$x = 100 \sqrt{\frac{1.82}{3.75}} = 69.66, \text{ say } 70 \text{ r.p.m.}$$

In practice, however, this result is not attained; but the fourth power of the speed is found to vary more nearly as the fifth power of the quantity of air in circulation, which makes the speed vary as the eighth root of the fifth power of the water gage; or, in this case,

$$x = 100 \sqrt[8]{0.4853^5} = 63.64, \text{ say } 64 \text{ r.p.m.}$$

QUESTION—If a mine has two openings, one 60 ft. higher in elevation than the other, with the temperature outside at 85 deg., and the temperature inside the mine at 50 deg., will a current of air be produced and, if so, in what direction will it move?

ANSWER—If it could be assumed that the average temperature of the two shafts differed but slightly from the given temperature of the mine, the solution of the problem would be definite and comparatively simple. We can, however, ignore the two shaft columns below the elevation of the lower opening, and consider an outside air column 60 ft. high and having a temperature of 85 deg., as being in balance with the air column in the upper portion of the deeper shaft, which we will say has a temperature of 50 deg., and is the heavier of these two columns, making that shaft the downcast for the mine, under the assumed conditions. Now, assuming a barometric pressure of 30 in., the weight of the mine air in the shaft column, for a depth of 60 ft., is $60(1.3273 \times 30) \div (460 + 50) = 4.6848$ lb. Likewise, the weight of a 60-ft. outside air column, at a temperature of 85 deg., is $60(1.3273 \times 30) \div (460 + 85) = 4.3836$. The difference in the weights of these two columns represents the unit of ventilating pressure, which is $4.6848 - 4.3836 = 0.3012$ lb. per sq.ft., to a water gage of $0.3012 \div 5.2 = \text{say } 0.06$ in.

Leaders to Study Industrial Co-operation

Leaders in the mining industry will discuss industrial co-operation in various phases at an informal conference April 27 at the Bankers Club in New York City under the auspices of the American Mining Congress, which at its last convention created a special division to develop this subject.

Invitations have been sent to 150 men prominent in mining affairs and acceptances are arriving in sufficient volume to assure success for the conference. In addition, members of the committees on industrial co-operation established by the congress in twenty states will be present. Speakers will include not only mining men but industrial leaders of other lines who have had experience with various plans of co-operation between employers and employees.

Sidney J. Jennings, president of the American Mining Congress, will preside at the conference, which will begin at 12:30 with a luncheon, the discussions continuing throughout the afternoon. W. A. Grieves, national chairman of the Division of Industrial Co-operation of the Mining Congress, will present the objects of the movement and the foundation which has been laid by the division for its work.

John D. Rockefeller, Jr., has been invited to attend and to speak of the co-operative work of the Colorado Fuel & Iron Co., particularly in the results of employees' representation. Among acceptances received are those of S. D. Warriner, C. H. Jenkins, C. F. Richardson, Otis Mouser, A. M. Meguire, J. G. Bradley, Lee Long, Frank Rash, W. H. Cunningham, George Van Dyke, G. D. Kilgore, D. B. Wentz, Albert Nason, Hugh Shirkie and Carl Scholz, representing coal-mining interests.

Governor Cox Attacks Anthracite Tax

Governor Channing H. Cox, of Massachusetts, has written Governor Pinchot, of Pennsylvania, a letter of protest against the Pennsylvania anthracite tax. "In my judgment the policy of your state to use its natural resources to build up Pennsylvania at the expense of less fortunate states is most dangerous," said the Massachusetts executive. "As

the nation's non-replaceable natural resources become more completely discovered and developed, such a policy of discrimination would result in economic disaster."

Major Accidents Force Up Fatality Rate In Coal Mines During February

Accidents at coal mines in the United States in February, 1923, according to reports from state mine inspectors to the U. S. Bureau of Mines, resulted in 292 deaths, as compared with 237 in February, 1922. The fatality rate was 5.85 per million tons, based on a production of 49,933,000 tons during the month, as against a rate of 4.96 per million tons during February, 1922, based on an output of 47,742,000 tons. In January, 1923, the fatality rate was 3.23 per million tons produced.

During the first two months of 1923 the number of fatal accidents at coal mines was 487, representing a rate of 4.48 deaths per million tons, based on a production of 108,824,000 tons. In January and February, 1922, fatal accidents numbered 397, indicating a fatality rate of 4.33 per million tons, based on a production of 91,604,000 tons of coal. The figures for 1923 include the loss of 125 lives in two mine explosions; those for 1922 include the loss of 49 lives in four explosions. One of the explosions in 1923 occurred on Feb. 8 at Dawson, N. M., and resulted in the death of 120 men; the other explosion was in Schuylkill County, Pa., on Feb. 21, and killed 5 men.

Comparing the combined record for January and February, 1923, with that for the first two months last year, lower fatality rates per million tons are noted for falls of roof and coal, haulage, explosives, and electricity. An increased rate is noted for gas and dust explosions. The fatality rates per million tons during the first two months of 1922 and 1923, by main causes, were:

	1922	1923
Falls of roof and coal	1.976	1.774
Haulage	.830	.625
Gas and dust explosions	.677	1.305
Explosives	.207	.110
Electricity	.120	.110

COAL-MINE FATALITIES DURING FEBRUARY, 1923, BY CAUSES AND STATES
(Compiled by Bureau of Mines and Published by Coal Age)

State	Underground											Shaft				Surface						Total by States					
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas explosions and burning gas.	Coal dust explosions (including gas and dust combined).	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip, or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1923	1922
Alabama.....	3							1					4													5	15
Alaska.....																										0	0
Arkansas.....																										0	0
Colorado.....	2	2											1													4	5
Illinois.....	12		4										18													18	22
Indiana.....	3		1					1					5													5	1
Iowa.....	1												1													2	1
Kansas.....																										7	22
Kentucky.....	3		3					1					7													0	0
Maryland.....																										0	0
Michigan.....																										1	2
Missouri.....	1												1													2	0
Montana.....	1							1																		121	0
New Mexico.....			1		120								121													0	1
North Dakota.....																										0	1
Ohio.....	7							1					8													8	11
Oklahoma.....	1												2													2	3
Pennsylvania (bituminous).....	17	7	10										2	36												36	55
South Dakota.....																										0	0
Tennessee.....								1					1													1	7
Texas.....																										0	0
Utah.....			3										4													4	2
Virginia.....	1												4													4	3
Washington.....	1												4													4	1
West Virginia.....	9		8		3								17										1	3	4	21	35
Wyoming.....	1												2													2	0
Total (bituminous).....	63	9	30	4	120	1	1	5	2	1			3	239					4		4		1	5	6	245	191
Pennsylvania (anthracite).....	13	4	6	5									3	33												47	46
Total, February, 1923.....	76	13	36	9	120	2	1	5	2	2			6	272					4		4		2	8	18	292	237
Total, February, 1922.....	88	12	46	12	34	11	1	7	1	2			8	222	2	2	1		5		3		1	2	10	.....	237

5,000 West Kentucky Miners Strike; Would Renew Pact For One Year; Operators Ask Two-Year Renewal

Chicago, April 2.—Approximately five thousand miners struck Saturday night in Christian, Webster and Hopkins counties of western Kentucky. The owners of forty mines there, comprising the Operators' Association—an organization distinct from the West Kentucky Operators' Association—refused to sign with the United Mine Workers of America for a one-year continuance of the present union scale. They held out for a two-year contract and Lonnie Jackson, president of the union district, called out his men. Practically every union mine in the three counties is shut down except those of the St. Bernard Mining Co., which signed on a one-year basis on the 27th at Louisville, when the West Kentucky Operators' Association continued the present contract with the union. A few non-union strip mines in the three counties are unaffected.

On Monday, which was Mitchell day for the United Mine Workers, of course there were no union operations working anywhere, so the evidences of strike in the three counties were few. It was prophesied by both operators and union leaders, however, that the strike would be a peaceful one, at least at the beginning. There is no crying demand for the coal that might be mined in the shut-down properties and no effort is to be made now to run them. The operators say they are well fixed for an enforced idleness.

"We do not want to go open shop," says a statement from Virgil Y. Moore, attorney for the Operators' Association, "but this fight has been forced upon us by union leaders, and if we find it necessary to go open shop in order to have a steady run of our mines, we will do so."

The conference in Madisonville the 27th followed the Louisville meeting at which operators of the West Kentucky Operators' Association, including about two-thirds of the field, had signed up for a one-year continuance of the agreement. The temper of the two meetings was markedly different. At Louisville sweet peace had prevailed and Lonnie Jackson, union district president, had issued a statement saying that probably never again would there be a district strike of miners in western Kentucky.

But at Madisonville the Operators' Association, covering Webster, Hopkins and Christian counties and employing about 5,000 men, refused to sign as the bigger association had done. It declared for a two-year agreement. The union would accept nothing but a contract like that signed with the rest of the field, to run one year. Negotiations soon halted. Both sides left and gave evidences of preparing for a strike.

President Jackson in his union statement said the union was ready to sign for the same period as the rest of the unionized bituminous fields of the country—for the one year recommended by the United States Coal Commission. He said the operators' only reason for insisting upon two years was that a two-year plan would overlap the rest of the country next April 1 and would guarantee that their mines could run after that date no matter what happened elsewhere. He said that if the Operators' Association mine owners did not sign by midnight of March 31, a strike would be called and the mines would shut down in the three counties.

The Operators' Association statement said:

A system has been established in Hopkins and Webster counties during the past four years under the contracts between the operators and the union whereby there could be no controversy between the companies and their employees over any question of wages. Wages were adopted automatically to meet those paid by union operators, our competitors. All grievances were settled by friendly arbitration. No strikes were or could be called on account of controversies in Illinois or other states. Our contracts, being for two years, overlapped all other contracts in other districts. Thus we were able to operate and give our local people work during national strikes. This condition could be continued to our profit and that of our men and communities by the making of a two-year contract, to expire April 1, 1925.

The union, however, refuses to make a two-year contract, insisting on a one-year contract, so that when the usual national strike is called April 1, 1924, our men, though having no grievance or controversy with us, will be arbitrarily called out then.

Rather than have this menace hang over us for a year, we prefer to close down our mines now and let them stay closed

until our men can induce their union to restore conditions as they have been for the last four years.

The break lies squarely at the union officials' door; they have refused to make the same contract with us that has for so long worked well to the benefit of all concerned. We shall not attempt to reopen negotiations, as the union district president has assured us that it would be idle to do so. We still are willing to renew the present contract for two years. Economic conditions make it impossible for us to make any other contract. We have no desire to go open shop or non-union unless forced to do so by the union officials.

The area in the affected zone has a yearly output of 4,500,000 tons of coal. About forty plants are included in the Operators' Association, an organization separate and distinct from the West Kentucky Coal Operators Association. Included in the list is the Kentucky Block Coal Corporation, two plants; Hart Coal Corporation, three plants; Reinecke Coal Co., one plant, all near Madisonville; Providence Mining Co., two plants; Diamond Coal Co., two plants; Buckman Coal Co., three plants, all near Providence, Webster County. The remainder are small operations scattered through the three counties.

Twenty-six Companies in Kanawha District Sign New Wage Scale

When it came time, on March 29, to sign a scale covering the year beginning April 1, 1923, for that section of the Kanawha district of West Virginia where mines are operated on a union basis only seventeen producers representing eighteen operations in the entire field signed the new agreement with the United Mine Workers. Companies becoming a party to the scale agreement for the new coal year were: Ivy Branch Coal Co., Spruce River Coal Co., Gilbro Coal Co., Halcon Coal Co., Standard Eagle Coal Co., West Virginia Eagle Coal Co., New Export Coal Co., American Rolling Mills Co., for the Martin mine; Kanawha & Hocking Coal & Coke Co., Blue Creek Coal & Land Co., Fayette-Kanawha Coal Co., Cannelton Coal & Coke Co., Plymouth Coal & Mining Co., Lewis Coal & Coke Co., Crown Hill Coal Co., Coalburg Kanawha Mining Co. and Edwin Marmet Coal Co., for the Monarch and Hernshaw mines.

Although several companies heretofore operating their mines in agreement with the union had not signed any agreement for the new year pending a final decision from the Circuit Court of Appeals on the question of whether they had a right or not to pay over the proceeds of the check-off, 26 companies in the Kanawha field had appended their signatures to a contract with the union on March 31, when the old agreement expired. Companies in addition to those already signed who entered into contract with the union were: Kelley's Creek Colliery Co., Simms Branch Coal Co., Southwestern Splint Fuel Co., Hackett Coal Co., Eureka Coal Co., Big Bottom Coal Co., and the Indian Run Colliery Co. Eighteen companies who had an agreement with the union had not at the expiration of the old agreement signed any new contract with the union.

Although some of the operators not signing have refrained from doing so pending a decision of the court, yet it is understood that others among the 18 will not under any condition again enter into agreement with the union. Some of those not signing have closed down their mines and others are operating now on a non-union basis. As a result of the failure of some companies to sign, radicals have become active on Cabin Creek in the Kanawha field and there have been reports of minor disorders there, though none could be confirmed.

Union mines were closed down on April 2 in observance of Mitchell day.

Since the organization of the field the union has not been given to making concessions to Kanawha operators. In negotiating a wage scale this year, however, the union yielded upon several points, possibly because of the fact that so small a remnant of the operators in the Kanawha field are now operating in agreement with the union. Many

of the amendments to the old agreement, suggested by the operators were adopted.

Included in the list of amendments were a clause eliminating bonuses and premiums formerly paid union miners, except in cases where the sums are paid because of local conditions, a clause providing for tracklaying by the miners and the adoption of a uniform slate scale, superseding local slate-scale agreements.

It is provided in the new agreement that if during the life of such agreement the question of rates for the arc-wall or track-cutting machine arises, the matter will be adjudicated as provided for in Section 25-A of the agreement.

The general rates of pay in the new agreement are the same as those in the old agreement which expired on April 1. Nearly all the mines in the Kanawha field are now operated on a non-union basis.

Full Bench Hears Union Appeal from Judge McClintic's Injunction

Argument of the appeal of the International organization, United Mine Workers of America, from the temporary injunction issued by Federal Judge McClintic at Charleston, W. Va., March 20, forbidding the use of money collected through the check-off for the purpose of unionizing non-union mines, was heard by the full bench of the U. S. Circuit Court of Appeals at Richmond, Va., March 31. William A. Glasgow, Jr., of Philadelphia, represented the union, and S. B. Avis, of Charleston, W. Va.; E. L. Greever, of Tazewell, Va., and A. M. Belcher, of Charleston, appeared for the operators. A decision is expected soon.

Judge Edmund Waddell, Jr., of the appellate court, temporarily suspended Judge McClintic's injunction March 24 and representatives of the miners' union said they would be governed by Judge Waddell's decision pending a final decision by the full court. Meanwhile failure to reach a settlement has been an obstacle to an agreement between operators of union mines and the union for the year beginning April 1.

Slight Gain in German Coal Output in 1922

Complete statistics of German coal production, as well as exports and imports in 1922, now available, are shown in the following tables, accompanied by the figures for 1921 and 1913 for comparison. They comprise the output within Germany's present frontiers, including, however, the alienated parts of Upper Silesia. In the figures of 1922 the latter is omitted starting with June, 1922, when the partition came into force.

OUTPUT OF COAL BY GERMAN MINES
(In Metric Tons)

	1922	1921	1913
Bituminous coal.....	129,964,597	136,227,231	173,096,426
Brown coal.....	137,207,125	123,010,036	87,233,084
Coke.....	29,664,291	27,913,436	32,652,933
Patent fuel { Bituminous coal.....	5,562,841	5,686,176	6,811,097
Brown coal.....	29,466,149	28,243,162	21,976,744

IMPORTS OF COAL BY GERMANY
(In metric tons)

	1922	1913
Bituminous coal.....	12,598,397	10,540,069
Brown coal.....	2,015,631	6,987,065
Coke.....	288,765	594,501
Patent fuel { Bituminous coal.....	39,241	27,273
Brown coal.....	30,557	120,965

The chief countries of origin were Great Britain, Polish Upper Silesia, the Sarre district and, in the case of brown coal, Czechoslovakia. The share of these countries in the total may be seen in the following, in metric tons:

	Bituminous Coal	Brown Coal	Coke	Patent Fuel { Bituminous Coal	Patent Fuel { Brown Coal
Great Britain.....	7,793,888		166,784	20,323	
Polish Upper Silesia.....	2,966,476		88,087	11,760	
Sarre District.....	1,147,000		13,590	2,471	
Czechoslovakia.....	106,286	2,014,351			30,526
Total.....	12,598,297	2,015,631	288,765	39,241	30,557

Imports of brown coal in 1922 registered a further decline in accordance with the development of German brown-coal mining. Present imports are based upon the higher

quality of Czechoslovakian brown coal and upon expediency of transport, which especially applies to Bavaria, which is nearer to the Bohemian fields than to German sources of supply.

GERMAN COAL EXPORTS, EXCLUDING REPARATION COAL:
(In Metric Tons)

	1922	1913
Bituminous coal.....	5,062,021	34,598,408
Brown coal.....	14,223	60,345
Coke.....	908,177	6,432,986
Patent fuel { Bituminous coal.....	39,474	2,302,602
Brown coal.....	418,491	861,135

A large part of these exports was contributed by Upper Silesia, but since the partition of the province these no longer figure as German exports. The remainder consists only of the supply to Holland, which was 1,064,843 tons; to the Sarre district and Switzerland, which amounted to 800,000 tons in the aggregate.

Shipment of reparation coal in 1922 consisted of the following: Bituminous coal, 8,906,503 metric tons; coke, 6,451,862 metric tons; brown coal, 677,127 metric tons. Computed on the efficiency level of bituminous coal at the usual ratio these quantities equal 19,006,248 metric tons. The quantity stipulated for was 21,193,866 tons. The shortage in the deliveries was therefore 2,187,618 tons or 10 per cent.

The Entente countries shared in the reparation deliveries as follows: France and Luxembourg, 13,201,195 tons; Belgium, 3,021,353 tons; Italy, 2,783,700 tons.

Smokeless Coal Output in 1922 Exceeds That of 1921 by 5,000,000 Tons

Of the 33,768,766 tons of smokeless coal produced in West Virginia in 1922, 21,099,725 tons originated on the line of the Norfolk & Western. Smokeless output was more than 5,000,000 tons in excess of that for 1921, it is shown in a table prepared by the Winding Gulf Operators Association. According to that table smokeless tonnage was handled by the various roads as follows for the years 1922 and 1921:

	1922	1921
Norfolk & Western.....	21,099,725	17,442,900
Virginian.....	6,402,056	5,674,545
Chesapeake & Ohio.....	6,266,985	5,601,610
Totals.....	33,768,766	28,719,055

TONNAGE MOVED BY RAILROADS
Norfolk & Western

	1922	1921	1920
Pocahontas District.....	16,675,980	13,352,300	
Tug River District.....	4,423,745	4,090,600	
Thacker District.....	5,923,830	3,868,900	
Clinch Valley.....	2,020,940	1,159,100	
Kenova.....	1,753,780	808,900	
Totals.....	30,798,275	23,444,374	25,314,585

Chesapeake & Ohio

	1922	1921	1920
Logan District.....	12,274,810	10,551,200	
New River District.....	4,527,970		
Winding Gulf District.....	1,739,015	5,601,610	
Kanawha District.....	1,919,400	3,749,250	
Coal River District.....	1,393,930	1,962,300	
Kentucky District.....	3,842,030	1,900,000	
Totals.....	25,697,155	23,764,360	27,187,950

Virginian

	1922	1921	1920
Winding Gulf.....	5,276,600	4,551,639	
New River District.....	1,097,469	1,110,260	
High Volatile District.....	618,148	401,821	
Pocahontas District.....	27,987	12,646	
Anthracite District.....	588		
Totals.....	7,020,792	6,076,366	7,612,309
Grand totals.....	63,516,222	54,285,100	60,114,844

TONNAGE CONSUMED BY PRODUCERS*

	1922	1921	1920
Pocahontas District:			
U. S. Coal & Coke Co.....	3,665,220	2,229,800	3,310,050
Algonquin Steel Co.....	431,700	241,100	250,450
By-products Pocahontas Co.....	110,650	91,250	42,359
Tug River District:			
Solvay Collieries.....	449,738	225,900	429,150
Henry Ford.....	27,885	None	None
New River District:			
Milwaukee Coke & Gas Co.....	69,560	78,470	286,160
Winding Gulf District:			
Richmond Railway & Power Co.....	129,061	149,282	106,826
Totals.....	4,883,794	3,015,802	4,424,986

*Compiled by Winding Gulf Operators Association.

Union Leaders Urge Central Pennsylvania Non-Union Miners to Strike; Operators Report Men at Work

Altoona, Pa., April 2.—Taking advantage of Easter Monday, when practically all the mines in Somerset County were idle, officers of the United Mine Workers held meetings on Monday afternoon in practically every mining town in the county in an effort to get the non-union miners out. Of the 10,000 non-union mine workers in the Windber district, 1,200 have been out on strike since April 1, 1922. The appeal to join the union was made to the remaining 8,800. John Brophy, president of District No. 2, spoke at Windber and other leaders at various places.

All operators having cars report men returning to work, as the men have nothing to gain by joining the union, although the effect of the call will not be known for some time. The strike was called primarily to force a recognition of the union and to collect the check-off. There is no question of wages or working conditions involved. Miners in the Windber area get union rates and work on an eight-hour basis. Operations reached by the Baltimore & Ohio and Western Maryland railroads report no difficulty in mining coal to load all available cars. No attempt has been made to call out miners in other sections of central Pennsylvania and all operators having cars are working as usual. John Brophy, district president of the miners' union, and J. C. Brydon, representing the association of operators, have assured Governor Pinchot that they will use their best efforts to avoid violence. The outcome is being watched with considerable interest, as the Somerset district is the only portion of the central Pennsylvania field still working on a non-union basis. So far, reports indicate, but few men have joined the union ranks.

Governor Pinchot today said that he expected no trouble to come from the strike of bituminous miners in Somerset County, brought about through efforts to unionize the mines. "In view of the coal strike announced to begin today in Somerset County," he said, "I have called in John Brophy, president of District No. 2, representing the miners, and J. C. Brydon, representing the association of operators, and have explained to them both that the state takes no part in the controversy but is interested purely in maintaining public order."

BOTH SIDES PROMISE TO AVOID VIOLENCE

"Both Mr. Brophy and Mr. Brydon have given me their assurance that every effort will be made on the part of those whom they represent to maintain order and avoid violence and both have been in communication with their friends in Somerset County in the effort to make this assurance good. I am convinced that there is entire good faith on both sides and I hope for the best results from the effort that each side is making."

If necessary, the state police will be called out, although the Governor intimated that he did not believe the occasion would arise as a result of today's conferences. The state police were in the bituminous field prior to and long after the national guard which a year ago was sent into southwestern Pennsylvania.

It is unofficially reported that the state authorities will allow no outdoor meetings of the miners, but will take no action to prevent those held by the union in halls. The state constabulary are mobilized at points outside but adjacent to the disturbed areas.

For the past three months there has been a great deal of speculation as to whether the local union would attempt to call a strike in Somerset County in a second effort to organize that field. A year ago, on April 1, the union demonstrated unexpected strength in this area and for a time had a large portion of the field on strike. Striking miners were told in the summer of 1922 that the union fields would not settle and return to work until the operators were forced to recognize the union in Somerset County. John Brophy led the fight, backed more by radicals outside his organization than by John Lewis, it appears. He announced not so long ago that radicals in New York City

had furnished some \$40,000 to help finance his Somerset strike. As the summer wore on the operators were able to augment their forces materially, and, except for one company, to get back to somewhere near normal operation by the time the strike was settled in the union fields in August, 1922.

Not so long after settlement of the big strike was effected, John Lewis called off the strike in the non-union Connells-vill field, adjoining Somerset on the west, where similar efforts to organize the non-union workers directly under the international headquarters had been tried, apparently succeeded at first and then signally failed.

Subsequently Brophy asked Lewis to finance strike benefits for the Somerset strike, which he persisted in continuing. Lewis is reported to have asked him how many men he had out and what chance he had of winning. Brophy, it appears, was optimistic, asserting that 3,000 men were out. After going into the situation Lewis refused to prolong the strike with money from the treasury of the International and Brophy has been forced to go it alone. He tried to raise sympathy in New York City and actually got Mayor Hylan to send a committee to investigate conditions on the theory that the strike in Somerset was endangering the coal supply of public utilities in Greater New York. This investigation provided a junket for some of Hylan's friends and gave some printer a chance to turn out an elaborate brochure, but did Brophy no good.

U. S. D. Corporation May Buy Coal Holdings Of Central Coal & Coke Co.

Negotiations are under way for the purchase by the United States Distributing Corporation of the entire coal holdings of the Central Coal & Coke Co. The Central is understood to be planning to expand its lumber activities.

Harry N. Taylor, president of the distributing corporation and until the first of this year vice president of the Central, says an agreement of sale has been reached with the officers of the Central and now awaits confirmation by the company's Board of Directors. The price agreed upon has not been announced, but in financial circles in Kansas City it is rumored to be in the neighborhood of \$10,000,000.

When the deal is closed it is understood the distributing corporation will operate its newly acquired holdings under the name of the Central Coal Corporation, with offices in Kansas City and with few changes in the personnel now employed by the Central Coal & Coke Co.

The property comprises acreage, mines and tipples in Arkansas; Cherokee and Crawford counties, Kansas; eastern Oklahoma; Ray and Macon counties, Missouri, and southern Wyoming, with a distributing organization embracing the southwest district. An official of the Central Coal & Coke Co. says the normal production with present equipment is 17,000 to 18,000 tons a day, with a potential capacity of double that amount. At present rate of production he estimates it would require fifty years to work out the Oklahoma acreage, thirty years for Arkansas, thirty to forty for Missouri and Wyoming, and fifteen for Kansas, but adds that other acreage is available to extend the life of all fields indefinitely. The Central is one of the largest operators in all states of the southwest district, but its greatest production is in Kansas and Arkansas.

Alabama Miners Reject Wage Increase

Union coal miners of Alabama declare that they will not accept the increase in wages announced March 16, but will demand the full scale agreed upon at the conference of bituminous coal producers and miners held in New York City in January. On March 27 they arranged to meet April 3 and present the higher scale.

Governor Smith Abolishes Office of New York Fuel Administrator

Governor Smith of New York issued a proclamation Tuesday night, March 27, abolishing the office of State Fuel Administrator on April 1. The Governor said he had been informed by Major General Goethals, the administrator, that "conditions are so far progressed toward their normal status that after April 1 the allotment basis of coal distribution will terminate and the normal flow of that commodity will be resumed." The offices of all local administrators will close on March 31.

The people of the state should be thankful, the Governor said, that industry and commerce have not been interrupted by the coal shortage. The administrator's offices, the Governor said, will remain open for thirty days after April 1, to conclude all unfinished business.

Under the terms of the New York State Fuel Administrator Law, passed at an extraordinary session of the Legislature last autumn, the Governor is given power to dissolve the administration by proclamation, but no right to revive his powers, so that a future emergency would be necessary in order to revive the measure, and that would have to be done by legislative action.

The administration was in existence nearly seven months. Administration officials said the winding up of its affairs would see New York City well supplied with coal.

Wholesalers to Convene in Cincinnati; Wadleigh Names Advisory Committee

The annual convention of the American Wholesale Coal Association is to be held in Cincinnati. The exact date has not been fixed but it probably will be during the second week of June.

Federal Fuel Distributor Wadleigh announces the appointment of the following advisory committee to co-operate with him in his study of marketing, storage and distribution of coal: T. F. Farrell, Pocahontas Fuel Co.; C. E. Tuttle, Tuttle Coal Corporation; S. L. Yerkes, Grider Coal Sales Agency; George W. Reed, Peabody Coal Co.; W. D. Ord, Empire Coal & Coke Co.; C. E. Bockus, Clinchfield Coal Company; S. A. Scott, New River Coal Company; C. F. Richardson, West Kentucky Coal Corporation; E. M. Poston, New York Coal Co.; S. Pemberton Hutchinson, Westmoreland Coal Co., and E. L. Douglas, First Creek Mining Co. A meeting of the committee is to be called in the near future.

Ford Will Not Mine His New Kentucky Land At Once, but Has Extensive Plans

Ford Motor Co. officials have stated to *Coal Age* that there is no intention of immediately opening up the new Ford coal holdings centering in Clay County, Kentucky. The approximate 120,000 acres of land acquired two weeks ago were bought with the double idea of holding both coal and timber in reserve, they declared. It is recognized that no production worthy of the name can be taken out of the property until a railroad has been projected into the area. No definite railroad building program has been laid down. However, the Detroit, Toledo & Ironton R.R., which is the logical line to extend southward into this new property, will be electrified and supplied with power from the new generating plant at Flatrock, Mich., a few miles west of Detroit, and with purchased power down along the line to the Ohio River, where eventually a hydro-electric plant may be built by the Ford interests. It would then be logical for a steam plant to be built somewhere on the newly acquired coal lands in eastern Kentucky.

It is Mr. Ford's intention to coke all or nearly all of the coal his own plants consume and to encourage the coking of the coal he sells to subsidiary and contributory concerns. It is by no means certain, however, that types of byproduct ovens now standard will be used. Koppers ovens are now in operation at the River Rouge plant in Detroit but Ford engineers are watching with interest the development of new types of ovens which may be used eventually.

In Detroit now the Ford company is producing a little more coke than it consumes and sells it to employees at \$8 a ton, which is half the market price in that city. The following table shows a calculated return to the company from a ton of coal if it costs \$2.42 per ton at the mine—a figure that may vary:

MATERIALS AND VALUES RECOVERED FROM 1 TON OF COAL AS COKED BY THE FORD MOTOR CO.	
1 ton of coal costs, at mine.....	\$2.42
Freight to Detroit, per ton.....	2.58
Total cost.....	\$5.00
7 1/2 gals. of tar, @ 7c. per gal.	\$0.53
2 1/2 gals. of light oil, @ 35c. gal.	0.81
11,100 cu.ft. of gas produced of which 5,800 cu.ft. is not required for coke-oven operation, @ 30c. per 1,000 cu.ft.	1.74
3 ton of coke, @ \$8 per ton.....	6.00
25 lb. ammonium sulphate, @ 3c. per lb.....	0.75
	\$9.85

Battle for Northwest Trade Is On

The Northwest and Midwest are just now reading a good deal of propaganda on the question: "Should rail rates be altered to give Lake docks a better chance at the Northwest market?" The dock interests have petitioned the Interstate Commerce Commission for an adjustment of rates upward on coal shipped from Indiana and Illinois. Preparatory to the hearing in Minneapolis, Minn., May 2, the dock operators are pointing to the rate disadvantage under which they now labor, which enables southern Illinois coal, for instance, to be laid down in Minneapolis for approximately 50c. a ton under any price the docks can profitably make. They point to their \$25,000,000 investment and say that without a freight equalization the docks will have to go out of business.

Operators' defenders in Indiana and Illinois reply that the drop in dock business over recent years has been only in the same proportion that coal production the country over has dropped. They point out that the docks, owned by Eastern interests whose mines have heretofore been guaranteed good summer running time by reason of the Lake trade, have been granted a distinct preference in emergencies such as the rail and mine strikes of last summer. They wonder why docks should get this preference at the expense of the people of the Northwest if Indiana and Illinois can undersell them in their own territory.

The case for an increase in rail rates from Illinois and Indiana to Minnesota, Iowa, Wisconsin and the Dakotas is covered in five complaints. The effort is not to get a reduction of rail, lake and rail rates from the Appalachian region northwesterly through the docks but an increase in the all-rail rates from the Western competing mining fields. The dock operators believe the Holmes and Hollowell scale, which now applies to shipments off the docks, should be applied also to coal from Midwestern mines. Illinois men say this would advance Illinois rates from 50c. to \$1.40 a ton and would set up a Northwest monopoly for the docks.

N. C. A. Takes Larger Quarters

The National Coal Association, forced by its increasing activities to have more office room, has leased space in the Southern Building, at Washington. For several years the association has occupied an entire floor in the Commercial Bank Building. At various times it has been necessary to make temporary use of space on other floors in this building and in a nearby building. So as to avoid the difficulties arising from a separation of activities, it was found necessary to move the offices to the Southern Building.

The Southern Building is at the corner of 15th and H Streets, northwest. It faces the Shoreham Hotel and is in the very heart of the capital's business district.

A portion of the newly acquired space is being occupied by the statistical force. The remainder of the offices will be moved as circumstances permit, during the next month or six weeks.

FRED W. LUKENS, OF KANSAS CITY, has been made a member of the Bituminous Operators' Special Committee.

Coal Commission Completes Field Work on Wholesale And Retail Distribution; Sanitary Survey Begun

BY PAUL WOOTON

Washington Correspondent of *Coal Age*

Criticism in the press of the action of the Federal Fuel Distributor in urging early purchase of coal led Commissioner George Otis Smith, of the President's Coal Commission, to state at the press conference on March 31 that he stands squarely with Fuel Distributor Wadleigh in the position he has taken. While Dr. Smith did not say so, there is reason to believe that the other members of the commission deem it the wise policy to begin at this time a definite program of coal storage. This applies to bituminous as well as to anthracite and to steam users as well as to domestic users.

Dr. Smith's references were largely to the policy that should govern the domestic user of anthracite. The advantages that come with the early storage of domestic fuel, both to the individual and to the industry, are such, he pointed out, as to offset the possible speculative advantages which might come were reductions in price made later in the season.

No duplication of the work being done by the commission will result from the studies which are being undertaken by the Federal Fuel Distributor and by the Federated American Engineering Societies. This point was emphasized by Commissioner Smith. His reference to the matter was prompted by recent statements that these studies would overlap, with consequent waste of funds and needless meddling. He declared that every precaution is being taken to prevent any duplication of work. The three studies, he said, will be carefully co-ordinated. While some may think that the expenditure of \$700,000 in less than a year on surveys of the coal situation cannot be justified, Dr. Smith pointed out that a saving of that amount to the consumers of coal well may result this year, to say nothing of the permanent results that may follow the only thorough and comprehensive analysis of the coal situation ever undertaken in this country.

DR. SMITH SETS EXAMPLE IN ORDERING EARLY

"Dr. Smith mentioned incidentally that he is practicing what he is preaching in that he personally has followed Mr. Wadleigh's advice and has placed his order for his entire requirements of household fuel for next winter."

During the conference with the correspondents Governor Marshall related this experience: When the removal of appendices just was coming into vogue an Indiana doctor operated on a patient but made the necessary incision on the wrong side of the body, a full 8 in. away from the appendix's nearest point. As a result of the malpractice the patient barely escaped death. Governor Marshall, then a young lawyer, was retained to bring legal proceedings against the physician. After a long legal battle he obtained a judgment in favor of his client, but not until after the members of the medical profession in that vicinity, including many physicians of whose great ability there was no doubt, had interposed every possible technicality and even had resorted to violent distortions of truth and common sense.

Governor Marshall drew no moral from his story, but to his hearers the thought occurred that he believes the same situation exists in the ranks of each group within the coal industry. They are ready enough to accuse each other but are loath to admit any shortcoming on the part of their own colleagues.

At the conference Governor Marshall announced the receipt of a letter from Judge Alschuler which indicated definitely that he would not resume his duties with the Coal Commission. Governor Marshall expressed deep regret that the commission is not to have the advantage of Judge Alschuler's assistance. He spoke highly of Judge Alschuler's ability and stated that he is particularly qualified to pass on many of the questions before the commission. Dr. Smith has not given up hope that the commission still will receive

some benefit from the study that Judge Alschuler gave to the coal situation, as it is possible that certain problems will be submitted to him for his opinion.

Dr. Smith reported that returns on the cost questionnaires are being received in satisfactory volume and that in many cases companies that had delayed their report had advised the commission that it would be forthcoming at the earliest possible time. In the matter of tabulation the commission's force has been able to keep abreast with the incoming returns. Dr. Smith stated that it had not been necessary to invoke the powers conferred recently by Congress providing for sworn answers to questionnaires.

A published statement to the effect that the commission had sought to induce the Pennsylvania Legislature to defer certain coal legislation was denied by Dr. Smith. He admitted having discussed the matter with Senator Pepper, but, as had been set forth in the commission's letter to J. C. Brydon, of the bituminous operators' special committee, the commission is in no position to memorialize state Legislatures. Dr. Smith reiterated that the commission believes that it would be in the public interest for the Legislatures to withhold legislation until after the commission had completed its study. It obviously would be improper, he said, for the commission to make any such direct representations to a state body.

PERSONNEL INCREASED 44 IN TWO WEEKS

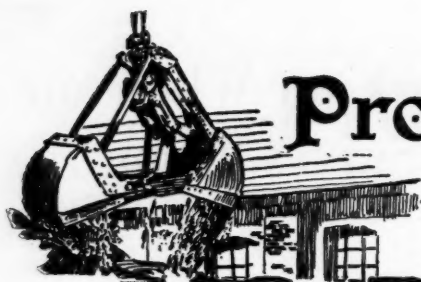
All field work on wholesale and retail distribution has been completed. As certain phases of the work are concluded the employees engaged in that particular work are dropped from the roll. The augmentation in other branches, however, is requiring additional personnel, with the result that the force grew from 216 to 260 between March 17 and March 31.

Actual work on the sanitary survey, being undertaken at the commission's request by the Public Health Service, is in progress in Belmont County, Ohio, it was stated.

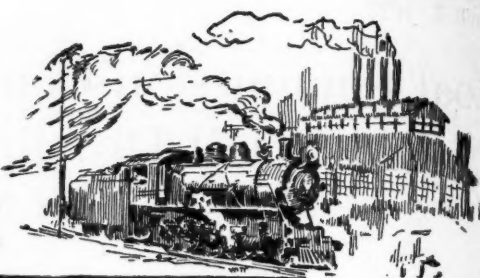
The Coal Commission was very anxious to take advantage of the experience of W. B. Reed in accounting and tax matters, in connection with its study of investments in coal properties. Mr. Reed was forced to decline the tender to direct that study because the Committee on Enrollment and Disbarment of the Treasury Department, to whom the proposition was submitted, ruled that such an appointment in effect would make Mr. Reed a government employee and, therefore, would preclude him from continuing his private practice in matters of taxation before the Commissioner of Internal Revenue.

William Lamont Abbott, chief operating engineer of the Commonwealth Edison Co., Chicago, has been selected to head the special committee of the Federated American Engineering Societies which will make a study of coal storage. Mr. Abbott was born in Whiteside County, Illinois, in 1861. He was graduated from the University of Illinois in 1884. He worked as a machinist and draftsman in Chicago from that date until 1887, when he became president of the National Electric Construction Co. He continued in that position until 1894, when he was made chief engineer of the Chicago Edison Co.'s power house. He served in that capacity until 1899, when he became the chief operating engineer of the company. Mr. Abbott long has been a student of coal storage. He was selected for the chairmanship of the Federated Society's committee on the recommendation of the late Dr. H. H. Stoeck, of the University of Illinois.

A digest of the character of state legislation affecting the coal industry proposed and enacted since Jan. 1 is being prepared by the National Coal Association.



Production and the Market



Weekly Review

Prices of soft coal bounced a trifle from the bottom of last week and on Monday upward reactions in three standard grades, eastern Kentucky, Clearfield, and Cambria-Somerset in the East turned the general price average up 6 points in the *Coal Age* Index. On Monday, April 2, the Index stood at 252 as compared with 246 the previous week.

Interest today centers on April prices, as commitments beyond the end of this month are rare, outside of a few pieces of large buyers, largely railroad. Sales for April delivery are at figures around those quoted today, best low-volatiles from central Pennsylvania around \$4, from southern West Virginia \$3.50@ \$4, with Illinois screenings holding to \$1.90 as a bottom figure.

Except locally no marked changes in the soft-coal market are expected until prices are made for May deliveries.

Despite a widespread change for the better in traffic conditions, production decreased, corrected estimates showing less than 10,500,000 net tons of bituminous coal in the week ended March 24.

EXPORT DEMAND EASY

Export demand continued to sag. Prices eased somewhat and the indications are that European buyers are holding off pending further developments in the Ruhr and further evidence of urgent needs.

The smokeless agencies also have had on hand at Hampton Roads more coal than orders with accumulation, upward of 200,000 tons, mainly low-volatile. At the end of the week Navy standard grades were an easy purchase at \$6@ \$6.25 per gross ton f.o.b. vessel, and now that rehandling congestion at Boston is practically at an end the various New England factors are marking down their current supplies to figures that are little if any above \$8.50@ \$8.75 per gross ton on cars. Much of this coal now being offered was shipped at higher

cost and no drastic reduction is expected for another couple of weeks.

Dumpings at Hampton Roads during the week ended March 29 were 370,823 net tons, as compared with 407,234 net tons the previous week, a decrease of 36,411 net tons, and the week past was marked by more than usual dumpings for export at Baltimore.

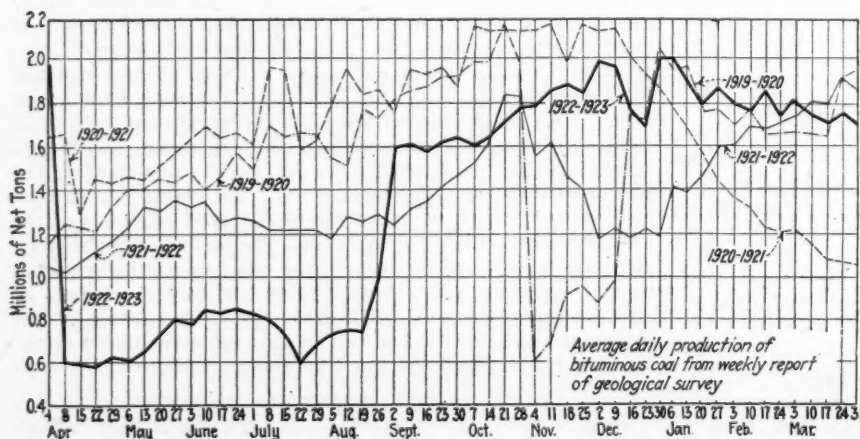
In the Middle West domestic coals were kept moving, due to weather conditions, but the steam sizes dragged considerably. Eastern Ohio had a dull week and expects nothing unusual to develop until the Lakes are in full swing.

RAILROADS CONSIDER CONTRACTS

The New York Central R.R. has this week been considering contracts for supplying coal for the new coal year and the trade is awaiting announcement of the range of prices at which this large buyer covered its requirements of several million tons. It generally is conceded in advance that prices are lower than last year. Bids will be opened next week by the New Haven for 250,000 net tons of bituminous coal to be delivered at South Boston, Mass.

"Present estimates of soft-coal production for the week ended March 24," says the Geological Survey, "indicate a total output of 10,443,000 net tons, including coal shipped, mine fuel, local sales, and coal coked. There is thus shown a very slight increase over the revised estimate of 10,428,000 tons for the week preceding and a decrease of approximately one million tons as compared with the output of the corresponding week a year ago.

"Preliminary reports of cars loaded in the week March 26-31 show 41,119 cars on Monday, 31,705 on Tuesday, 29,832 on Wednesday, and 28,059 on Thursday, and for those days totaled 1,000 cars more than for the corresponding period of the week before. Loadings on



Estimates of Production

(Net Tons)

BITUMINOUS

	1922	1923
Mar. 10 (b).....	11,102,000	10,628,000
Mar. 17 (b).....	10,843,000	10,428,000
Mar. 24 (a).....	11,448,000	10,443,000
Daily average.....	1,908,000	1,740,000
Coal year to date.....	424,285,000	409,314,000
Daily average coal year.....	1,409,000	1,358,000

ANTHRACITE

Mar. 10.....	1,982,000	2,049,000
Mar. 17.....	1,907,000	2,057,000
Mar. 24.....	2,095,000	2,126,000
Coal year to date.....	87,411,000	54,478,000

COKE

Mar. 17 (b).....	409,000	410,000
Mar. 24 (a).....	175,000	384,000
Calendar year.....	1,618,000	4,321,000

(a) Subject to revision. (b) Revised from last report.

Friday and Saturday, however, will doubtless show much lower production than on the same days of recent weeks and the total output for the week probably will not greatly exceed ten million tons."

As anticipated, the large producers of anthracite made no stir with the opening of the new coal year, reductions of 50c. on buckwheat, rice and barley being the only feature aside from a 15c. cut on pea by two companies. No reductions in the prices of the larger sizes of coal were announced. Reductions in retail prices were announced in Boston, Chicago and Philadelphia. The principal dealers in New York City made no changes in prices.

Retail dealers in hard-coal territory are circularizing their trade urging immediate filing of orders, pointing out that mine prices will show no decline this summer, and suggesting that coal in the cellar prior to Sept. 1, when the wage contract with the hard-coal miners expires, will be good insurance. Independents' prices will slump after the manner of these producers when the edge is off of demand, and thus take from under a

portion of the retail trade the argument for an extra dollar or so on householders' prices, but so far there is little evidence of it. Fuel Administrator Wadleigh has issued a proclamation urging early purchase and storage of all kinds of coal that should appeal to the average run of buyer.

Production of beehive coke in the week ended March 24, as estimated by the Geological Survey from reports of cars loaded by the principal coke carriers and in part on reports of producers, was 384,000 net tons as against 410,000 tons in the week preceding. The increase was principally in the output of the Pennsylvania-Ohio region.

Midwest's Burst Is About Over

Cold and more or less raw weather all week throughout the Midwest region kept domestic coals moving out of most fields with no marked drops in price, but steam sizes dragged a good deal and were sold often for whatever they would bring. Nobody is buying heavily, of course. Trading was brisk enough to take up about all the coal hoisted, however, the car supply in most fields was good enough to give oper-

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern		Market Quoted	Apr. 3 1922	Mar. 19 1923	Mar. 26 1923	Apr. 2† 1923
Smokeless lump.....	Columbus....	\$2.95	\$7.00	\$7.00	\$6.50@	\$7.25
Smokeless mine run.....	Columbus....	1.85	4.50	4.50	4.00@	4.50
Smokeless screenings.....	Columbus....	1.15	4.25	4.50	4.00@	4.50
Smokeless lump.....	Chicago....	2.60	6.35	6.35	6.00@	6.25
Smokeless mine run.....	Chicago....	1.35	4.00	4.00	3.50@	4.00
Smokeless lump.....	Cincinnati....	2.90	7.00	6.75	6.00@	6.50
Smokeless mine run.....	Cincinnati....	1.75	4.85	4.60	3.50@	4.50
Smokeless screenings.....	Cincinnati....	1.25	4.75	4.50	3.50@	4.25
*Smokeless mine run.....	Boston....	4.55	7.10	6.50	6.00@	6.25
Clearfield mine run.....	Boston....	1.95	3.05	2.60	2.40@	3.75
Cambria mine run.....	Boston....	2.45	3.85	3.60	3.50@	4.25
Somersett mine run.....	Boston....	1.90	3.35	3.10	3.25@	3.75
Pool 1 (Navy Standard).....	New York....	2.85	4.35	4.25	4.00@	4.25
Pool 1 (Navy Standard).....	Philadelphia....	2.80	4.55	4.50	4.10@	4.50
Pool 1 (Navy Standard).....	Baltimore....	2.70				
Pool 9 (Super. Low Vol.).....	New York....	2.25	3.60	3.50	3.25@	3.75
Pool 9 (Super. Low Vol.).....	Philadelphia....	2.15	3.80	3.70	3.20@	3.80
Pool 9 (Super. Low Vol.).....	Baltimore....	2.30	3.50		3.50	
Pool 10 (H.Gr. Low Vol.).....	New York....	2.00	3.10	3.00	2.60@	3.25
Pool 10 (H.Gr. Low Vol.).....	Philadelphia....	1.90	3.15	3.20	2.80@	3.20
Pool 10 (H.Gr. Low Vol.).....	Baltimore....	2.20	3.25		3.25	
Pool 11 (Low Vol.).....	New York....	1.80	2.55	2.50	2.25@	2.75
Pool 11 (Low Vol.).....	Philadelphia....	1.75	2.55	2.60	2.30@	2.75
Pool 11 (Low Vol.).....	Baltimore....	2.10	2.35		2.35	
High-Volatile, Eastern						
Pool 54-64 (Gas and St.).....	New York....	1.60	2.35	2.35	2.10@	2.75
Pool 54-64 (Gas and St.).....	Philadelphia....	1.50	2.25	2.35	2.20@	2.45
Pool 54-64 (Gas and St.).....	Baltimore....	1.60	2.40		2.40	
Pittsburgh se'd gas.....	Pittsburgh....	2.65	4.05	3.60	3.00@	3.75
Pittsburgh mine run (St.).....	Pittsburgh....	1.85	2.35	2.35	2.00	
Pittsburgh slack (Gas).....	Pittsburgh....	1.55	2.60	2.50	2.25	
Kanawha lump.....	Columbus....	2.35	4.25	4.50	4.00@	4.50
Kanawha mine run.....	Columbus....	1.45	2.60	2.75	2.50@	3.00
Kanawha screenings.....	Columbus....	1.35	2.05	2.40	2.00@	2.60
W. Va. lump.....	Cincinnati....	2.15	3.75	3.60	3.25@	3.75
W. Va. Gas mine run.....	Cincinnati....	2.10	3.35	2.75	2.75	
W. Va. Steam mine run.....	Cincinnati....	1.45	3.00	2.75	2.50	
W. Va. screenings.....	Cincinnati....	1.30	2.35	2.35	2.00@	2.25
Hooking lump.....	Columbus....	2.55	3.75	3.75	3.25@	3.75
Hooking mine run.....	Columbus....	1.75	2.35	2.45	2.25@	2.50
Hooking screenings.....	Columbus....	1.55	1.95	2.05	1.85@	2.00
Pitta. No. 8 lump.....	Cleveland....	2.75	3.70	3.10	2.50@	3.35
Pitta. No. 8 mine run.....		Market Quoted	Apr. 3 1922	Mar. 19 1923	Mar. 26 1923	Apr. 2† 1923
Pitta. No. 8 mine run.....	Cleveland....	\$1.80	\$2.70	\$2.35	\$2.15@	\$2.35
Pitta. No. 8 screenings.....	Cleveland....	1.65	2.50	2.10	1.90@	2.15
Midwest						
Franklin, Ill. lump.....	Chicago....	\$3.35	3.85	3.85	3.85	
Franklin, Ill. mine run.....	Chicago....	2.40	3.35	3.10	3.00@	3.25
Franklin, Ill. screenings.....	Chicago....	2.05	2.35	2.05	1.90@	2.25
Central, Ill. lump.....	Chicago....	2.60	3.10	3.10	3.00@	3.25
Central, Ill. mine run.....	Chicago....	2.25	2.60	2.60	2.50@	2.75
Central, Ill. screenings.....	Chicago....	1.85	1.60	1.60	1.50@	1.75
Ind. 4th Vein lump.....	Chicago....	3.15	3.60	3.60	3.25@	3.50
Ind. 4th Vein mine run.....	Chicago....	2.35	2.85	2.85	2.75@	3.00
Ind. 4th Vein screenings.....	Chicago....	2.15	2.10	1.85	1.75@	2.00
Ind. 5th Vein lump.....	Chicago....	2.60	3.10	3.10	2.75@	3.00
Ind. 5th Vein mine run.....	Chicago....	2.20	2.10	2.10	2.00@	2.25
Ind. 5th Vein screenings.....	Chicago....	1.75	1.60	1.60	1.50@	1.60
Standard lump.....	St. Louis....	2.65	3.10	2.60	2.50@	2.75
Standard mine run.....	St. Louis....	1.80	2.25	2.10	2.00@	2.25
Standard screenings.....	St. Louis....	1.45	1.25	.95	.90@	1.00
West Ky. lump.....	Louisville....	2.35	2.80	2.50	2.25@	2.75
West Ky. mine run.....	Louisville....	1.85	1.85	2.05	1.75@	2.00
West Ky. screenings.....	Louisville....	1.70	1.65	1.70	1.60@	1.90
West Ky. lump.....	Chicago....		2.85	2.85	2.75@	3.00
West Ky. mine run.....	Chicago....		1.80	1.80	1.75@	1.85
South and Southwest						
Big Seam lump.....	Birmingham..	2.00		2.50	2.50	
Big Seam mine run.....	Birmingham..	1.70		2.10	2.00@	2.25
Big Seam (washed).....	Birmingham..	1.85		2.35	2.25@	2.50
S. E. Ky. lump.....	Chicago....		4.60	3.75	3.75@	4.00
S. E. Ky. mine run.....	Chicago....		2.85	2.85	2.75@	3.00
S. E. Ky. lump.....	Louisville....	2.25	5.05	4.00	4.00@	4.50
S. E. Ky. mine run.....	Louisville....	1.55	2.75	2.85	2.50@	3.25
S. E. Ky. screenings.....	Louisville....	1.40	2.50	2.25	2.25@	2.60
S. E. Ky. lump.....	Cincinnati....	2.10	3.60	3.50	3.75	
S. E. Ky. mine run.....	Cincinnati....	1.40	2.75	2.50	2.25@	3.00
S. E. Ky. screenings.....	Cincinnati....	1.30	2.35	2.25	2.00@	2.25
Kansas lump.....	Kansas City..	4.50	4.50	4.50	4.50	
Kansas mine run.....	Kansas City..	4.00	3.50	3.50	3.50	
Kansas screenings.....	Kansas City..	2.50	2.60	2.60	2.50@	2.75

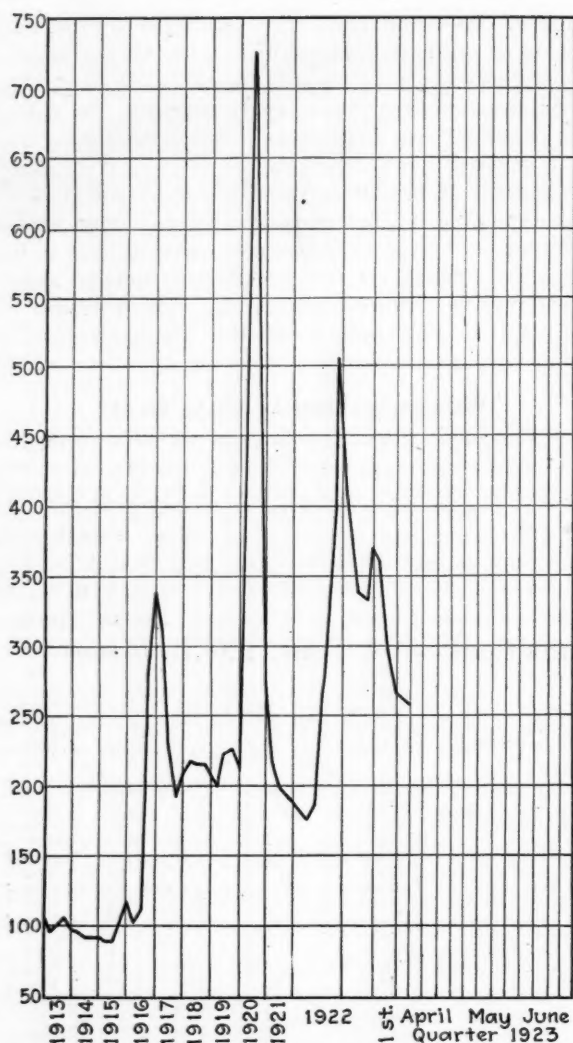
* Gross tons, f.o.b. vessel, Hampton Roads.

† Advances over previous week shown in heavy type, declines in italics.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	—Latest Pre-Strike—		March 26, 1923—		April 2, 1923†	
			Independent	Company	Independent	Company	Independent	Company
Broken.....	New York....	\$2.34		\$7.60@	\$7.75	\$9.00	\$7.75@	\$8.35
Broken.....	Philadelphia....	2.39	\$7.00@	\$7.50	7.75@	7.85	7.90@	8.10
Egg.....	New York....	2.34	7.60@	7.75	7.60@	7.85	8.00@	8.35
Egg.....	Philadelphia....	2.39	7.25@	7.75	7.75		8.10@	8.35
Egg.....	Chicago....	5.09	7.50	8.25	12.00@	12.50	7.20@	8.25
Stove.....	New York....	2.34	7.90@	8.20	9.25@	11.00	8.00@	8.35
Stove.....	Philadelphia....	2.39	7.85@	8.10	9.25@	11.00	8.15@	8.35
Stove.....	Chicago....	5.09	7.75	8.25	12.00@	12.50	7.35@	8.25
Chestnut.....	New York....	2.34	7.90@	8.20	9.25@	11.00	8.00@	8.35
Chestnut.....	Philadelphia....	2.39	7.85@	8.10	9.25@	11.00	8.15@	8.35
Chestnut.....	Chicago....	5.09	7.75	8.25	12.00@	12.50	7.35@	8.35
Range.....	New York....	2.34			8.25		8.30	
Pea.....	New York....	2.22	5.00@	5.75	6.30@	8.50	6.00@	6.90
Pea.....	Philadelphia....	2.14	5.50@	6.00	7.00@	9.00	6.15@	6.20
Pea.....	Chicago....	4.79	6.00	6.25	7.00@	8.00	5.49@	6.03
Buckwheat No. 1.....	New York....	2.22	2.75@	3.00	3.40@	4.25	3.00@	4.16
Buckwheat No. 1.....	Philadelphia....	2.14	2.75@	3.25	4.00@	5.00	4.00@	5.00
Rice.....	New York....	2.22	2.00@	2.50	2.25@	2.75	2.25@	2.75
Rice.....	Philadelphia....	2.14	2.00@	2.50	2.25@	3.00	2.75@	3.00
Barley.....	New York....	2.22	1.50@	1.85	1.25@	1.75	1.25@	1.75
Farley.....	Philadelphia....	2.14	1.50@	1.75	1.40@	2.00	1.40@	2.00
Pirley.....	New York....	2.22		2.00@	2.50			1.80

* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type, declines in italics.



Coal Age Index 252, Week of April 2, 1923. Average spot price for same period \$3.07. This diagram shows the relative, not the actual prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913, 1918," published by the Geological Survey and the war Industries Board.

ating mines about half time. It is generally admitted that within a few days, when real spring returns, many shut-downs will occur.

Independents in Williamson County are down to \$3 on domestic sizes and a low as \$2.75 on mine-run. One operator quoted a price of \$3 on a contract for lump and egg, about six or seven cars a day for a year. Duquoin field prices are somewhat in line with that of the independents. Jackson County is slightly higher and conditions are somewhat similar to those in Williamson and Franklin County.

The Mt. Olive condition is bad. Steam sizes fail to move and there is little demand for domestic. Steam coal is down to \$1.75 for screenings, \$2 for nut and slightly above that for steam egg. During the past week Mt. Olive domestic sizes dropped from \$4 to \$3.50 and it is expected that soon after April 1 a price of \$3 will be made.

Business has been good in the Standard field on domestic sizes. Cold weather has forced domestic buying in small quantities and this fell to the cheaper Standard coal. It is understood that coal from around Pinckneyville has been offered on contract for a year, mine run, at less than \$2.

Kentucky Market Firmer

As a result of cold weather Western Kentucky felt more demand from retailers during March than normally is the case. General industrial consumption is forcing a slightly better placement of orders on the part of big consumers, while the railroads with heavy tonnage movements are

taking a fair amount of fuel. Many wagon and hillside operations have closed down since prices reached present levels, which is making it easier on the larger operations. A threatened strike in one section of the field may have its effect, but the feeling is that the operators will not make an issue of their demand for a two-year instead of a one-year contract.

Northwest Frozen Again

The cold snap did a good deal for the coal trade in the Northwest by way of moving a volume of domestic coal and put off spring navigation by solidifying harbor and shore ice that once had given signs of breaking up. The main interest of Northwest coal men, however, lies not in immediate trade but in prospective freight-rate changes and the future of the docks. Dock propaganda is going out showing that rail rates distinctly favor Illinois and Indiana and that the docks will go out of business if the rate structure is not leveled up at once. Ammunition is piling up for the May 2 hearing in Minneapolis before the Interstate Commerce Commission.

A March survey of the Head-of-the-Lakes docks showed that much less free coal than had been supposed was on hand—about 452,000 tons of bituminous. No price advances were made, however. The continued slump continued instead.

The dock companies are afraid that what coal is carried over will be handled at a loss after the opening of navigation. From present appearances the prices will open up \$1 to \$1.50 lower than at present.

Milwaukee continues its rather feverish scramble for anthracite, which arrives in small shipments, and for coke, the supply of which is in a constant state of exhaustion. Anthracite screenings are hard to find because so little coal is being prepared.

West Passes Its Cold Peak

The snappy weather of a week ago, which moved all the "no bills" in the Kansas and Oklahoma field and which kept Colorado and Utah coal moving steadily from mines working about 60 per cent of the time, has passed. Once more domestic sizes are a drug in the Southwest while steam demand remains rather steady.

Ohio Trade Shows More Weakness

More weakness has developed in the Ohio coal trade, as a result of smaller orders on the part of steam-coal users and curtailment of business from retail dealers. Little activity is expected before the opening of the lake season, which is likely to begin earlier than at first expected, because of the clearing out of the ice.

Production is jamming the Cincinnati market and the outlet is clogged in all directions. The market for smokeless coal for April opened with a spread in prices that denotes indecision on the part of those who have this coal for sale. Local retail dealers are urging householders to put in their supplies early.

Operators and jobbers in the Cleveland market say that inquiries are few. Contract consumers are hesitant and spot buyers have no difficulty in getting coal. Shipments to the lower Lake ports are growing heavier and early loading tonnage is in good demand. Due to the scarcity of coal at some of the ports, boats are being shifted to fill out cargoes.

Market Dull, Prices Soft, at Pittsburgh

The Pittsburgh market was dull last week, with prices softer. Consumption by industries is heavy and appears to have increased during the past few weeks. Domestic demand practically disappeared several weeks ago. There has been little demand for gas coal for export and scarcely any for steam coal in the past week or two. Some of the small and high-cost mines are now closing and it is believed there probably would have been some closing of mines early in March had it not been for the export demand.

Car distribution in the central Pennsylvania fields, especially along the Pennsylvania R.R., amounted to little more than 20 per cent during the last week in March. There was no increase in demand.

Demand in the Buffalo market is light. Supply is heavy, due to the improved car supply.

Dealers in the Birmingham (Ala.) district are contracting for stocking coal for the new year and a number of mines have already booked orders for such proportion of expected output as they desire to tie up during that period, while others are sold ahead, three, six and nine months. Production is holding up well, being limited only by car supply. A slight labor shortage exists in some sections.

Outlook Unfavorable in New England

There are no bright spots in the current market in New England. Spot coal is easy in all directions, and the outlook for April is not favorable for much improvement. Recent wage advances in the textile industry have given the trade a hopeful view, but the largest of these plants get power from hydro sources and from fuel oil to such an extent that as a whole they are nothing like the factor they were five or six years ago.

Central Pennsylvania grades all-rail were rather druggy. Quotations were hardly more than nominal, because there is so little buying; there were rumors of extremely low prices, but as a general rule the operators have not yet shown their hand. If some of the non-union operations turn out to be reasonably well supplied with contracts while union mines are idle there will be real cause for trouble.

Contract business in New England appears to be at rather loose ends. At least one or two of the larger operating groups have made new selling arrangements in this territory, and the trade will be interested to see what policies will develop. In practically every instance the contract business that has been closed has been simply a continuation of last year's understanding. In other words, two or three of the Pocahontas and New River agencies have thus far made prices only for April, based on \$3.50@\$4 per net ton f.o.b. mines, the price depending upon the class of buyer. There is nothing to suggest, however, that there will be any broader market for grades all-rail than was the case last year.

Certain special users of Pennsylvania coals, together with some of the illuminating gas companies, have shown apprehension over transportation difficulties in the way of short car supply and inadequate motive power by continuing to take a proportion of their tonnage via New York and Philadelphia piers. Coastwise rates are reasonably low, especially in railroad-owned transportation, and greater volume is possible under present conditions by rail-and-water as compared with the all-rail route. Congestion is still the rule at certain of the Hudson River gateways, a situation that will take weeks and months to correct.

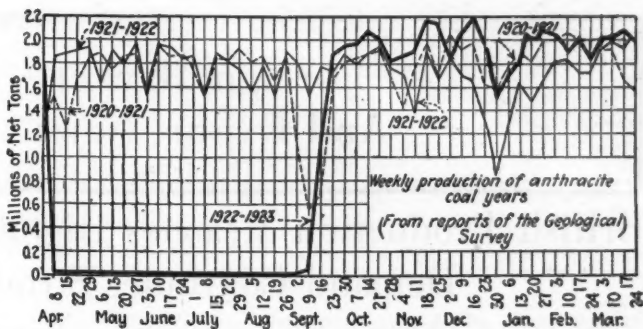
Demand Slow at New York and Philadelphia

Demand continued slow in both New York and Philadelphia markets, with prices falling slightly. Good coals were scarce for the spot buyer at the New York terminals, it being estimated that from 60 to 75 per cent of the coal at the terminals was on contract.

The Baltimore market was weak. There is small call for coal except in small lots and there is no tendency to stock up. Few contracts are being entered into.

Expect Active Summer Anthracite Demand

Demand for anthracite domestic sizes continued strong throughout March and is expected to be active throughout the summer. Some retail dealers in the larger cities an-



nounced a reduction in retail prices while others who had been selling at lower prices for the past several weeks announced no change. Many retail dealers in New York City have sent circular letters to customers advising them to place their orders and are consecutively numbering orders received.

Independent producers have found it necessary to lower their prices slightly but expect that with consumers insisting upon having their coal delivered, demand will increase and that quotations will advance soon.

Dealers in Buffalo are slow to buy independent product, though the quotations have been down to \$9. It is not expected that there will be any loading of anthracite at Buffalo for lake shipment until well into April.

"The production of anthracite in the week ended March 24, says the Geological Survey, is estimated, on the basis of 40,648 cars loaded, at 2,126,000 net tons, including mine fuel, local sales, and dredge and washery output. This was an increase of 7 per cent over the preceding week and the record production of the present calendar year.

"Early returns for the first four days of the present week, (March 26-31) show a high rate of production, which, on account of the church holidays, will not be maintained throughout the week and will doubtless fall much below the average for recent weeks."

How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Jan. 1 to Apr. 1, 1922 Inclusive	Sept. 5 to Dec. 30, 1922 Inclusive	Jan. 1 to Mar. 17, 1923 Inclusive	Week Ended Mar. 17, 1923
U. S. Total.....	55.7	84.7	89.0	(a)
Alabama.....	64.6	84.7	89.0	(a)
Somerset County.....	74.9	36.3	28.0	(a)
Panhandle, W. Va.....	51.3	57.3	55.2	54.3
Westmoreland.....	58.8	65.8	53.6	62.7
Virginia.....	59.9	55.7	53.5	55.8
Harlan.....	54.8	22.1	21.6	22.1
Hazard.....	58.4	16.4	19.4	26.9
Pocahontas.....	60.0	36.6	37.8	39.3
Tug River.....	63.7	28.8	34.1	35.3
Logan.....	61.1	26.2	30.9	30.9
Cumberland-Piedmont.....	50.6	31.7	45.8	50.9
Winding Gulf.....	64.3	30.4	33.5	39.6
Kenova-Thacker.....	54.3	42.4	40.0	47.7
N. E. Kentucky.....	47.7	28.4	28.2	(a)
New River.....	37.9	31.6	34.9	41.1
Oklahoma.....	59.6	59.1	42.3	45.0
Iowa.....	78.4	75.9	79.9	72.7
Ohio, Eastern.....	46.6	40.8	34.1	34.6
Missouri.....	66.8	76.3	76.4	76.7
Illinois.....	54.5	49.9	49.7	37.2
Kansas.....	54.9	55.9	48.5	39.0
Indiana.....	53.8	37.7	53.9	45.0
Pittsburgh†.....	39.8	41.2	32.3	35.1
Central Pennsylvania.....	50.2	53.4	44.7	44.8
Fairmont.....	44.0	35.5	36.2	34.0
Western Kentucky.....	37.7	32.4	33.4	28.1
Pittsburgh*.....	31.9	56.1	61.7	65.0
Kanawha.....	13.0	15.6	22.3	25.1
Ohio, Southern.....	24.3	38.1	32.9	29.4

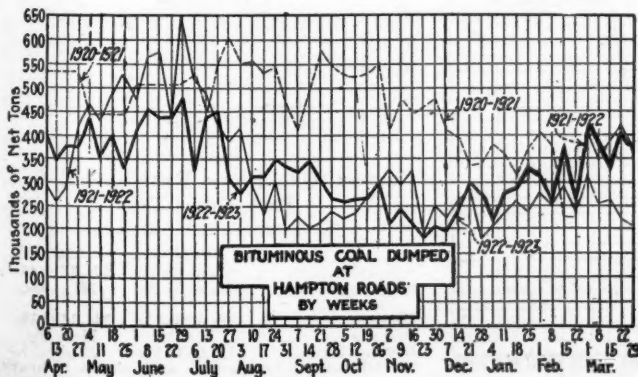
* Rail and river mines combined.

† Rail mines.

(a) No report.

Car Loadings, Surpluses and Shortages

	Cars Loaded		Car Shortage	
	All Cars	Coal Cars	All Cars	Coal Cars
Week ended March 17, 1923.....	904,286	183,530		
Previous week.....	905,219	186,327		
Same week in 1922.....	815,082	190,790		
March 14, 1923.....	12,461	3,897	74,442	30,405
March 7, 1923.....	13,229	4,127	79,270	34,642
Same date in 1922.....	216,661	79,803		



Foreign Market And Export News

British Production Reaches Highest for Year; Demand Continues Strong

Production of coal in the British mines hit the highest mark for the year during the week ended March 17 when 5,721,000 tons were produced. The output for the previous week was 5,713,000 tons. The big record for 1922 was recorded during the week of December 16 when 5,742,000 tons were mined.

Pressure on the Welsh market continues heavy, and, though operators have announced that their output till the end of April is sold, they are pressed with urgent demands. The business being received is considerably in excess of available supplies, and this has forced prices to a level which has not been reached since August, 1921, following the resumption of work after the strike of that year. Good business has been done with Germany. France and Italy are much larger buyers of Welsh coal than other countries, and consumers there are unwilling to take American coal as long as Welsh is obtainable. Sellers are not disposed to relax present prices.

Bristol Channel coal exports for the four weeks ended March 9 were 2,316,354 tons.

The demand on the Newcastle market is insistent especially from Germany, in spite of the fact that supplies for early loading are sold out and only occasional loads are available for delivery at any time this side of July. Inquiries extend from April to September delivery, and there is little to sell. These conditions have not been experienced for years.

Export Demand Up at Hampton Roads

Business at Hampton Roads was active last week, and March ended with the heaviest dumping record of the last twelve. Unusually large stocks were on hand, rushed to port by operators on the strength of revived foreign trade, and the result was a weakening of prices which was regarded as wholly temporary.

Export business was on the increase, large cargoes being forwarded to Germany and to Holland, the latter for ultimate consignment to Germany.

Coastwise business was somewhat reduced, but bunkers were holding strong. The car situation was reported as from 50 to 60 per cent of normal, whereas hitherto it has been only 30 to 40 per cent of normal.

The outlook was somewhat brighter, due to building up export business, although export inquiries had been reduced. No contracts were in sight as April 1 approached, the tendency of the purchasers being to depend further on spot prices.

Export Clearances, Week Ended March 24, 1923

FROM HAMPTON ROADS		Tons
For Belgium:		7,293
Braz. SS Pelotas, for Antwerp.....		
For Canada:		
Nor. SS Thorsdal, for St. Thomas.....		3,189
For Colombia:		
Amer. Schr. Kenton, for Cartagena.....		1,201
For Cuba:		
Nor. SS H. C. Flood, for Havana.....		2,743
Nor. SS Christian Krogh, for Havana.....		1,763
For Germany:		
Br. SS Taptan, for Emden.....		5,339
Nor. SS. Kristianfjord, for Hamburg.....		6,741
For Holland:		
Nor. SS. Sierstad, for Rotterdam.....		11,518
Swed. SS. Laponia, for Rotterdam.....		7,711
For Italy:		
Ital. SS. Bampton, for Porto Ferrajo.....		6,491
For West Indies:		
Swed. SS. Colombia, for Port au Spain.....		2,855

FROM PHILADELPHIA		Tons
For Belgium:		
Nor. SS. Opland, for Antwerp (coke).....		1,479
For Chile:		
Dan. SS. Nordfarer, for Antofagasta (coke).....		4,500
For Cuba:		
Dan. SS. Jan., for Havana (coke).....		7,000
For France:		
Bel. SS. Carlier, for Dunkirk (coke).....		6,150
For Germany:		
Dutch SS. Jobshaven, for Bremerhaven.....		6,750
(coke).....		6,000

Export Shipments from Baltimore

With the filing at the Baltimore (Md.) Custom House of manifests of 16 of the 17 steamers carrying export coal cargoes from that port during March, the total amount of dumpings, including bunkers, is shown to be 109,144 tons for the period from January 1 to March 31, 1923. For the three months there was loaded on ships 7,821 tons more than the total amount of cargoes sent from

Baltimore on export during the entire year of 1922. While there was but six vessels to leave Baltimore during January and February with cargoes totaling 13,331 tons and three of these vessels taking 1,472 tons of bunkers, making the total dumpings at tide for the two months 14,803 tons, there were 16 vessels to leave from March 1 to 27 inclusive with cargoes amounting to 91,970 tons, and six of these ships took 2,371 tons of bunkers, making the total dumpings for that period of the month 94,341 tons. Thus far in 1923 there have been 22 vessels to leave here with 105,301 tons of cargo coal, 9 of these ships taking 3,841 tons of bunkers.

During 1922 36 vessels left Baltimore with cargoes amounting to 101,325 tons, 14 of these vessels taking bunkers totaling 6,410 tons, making the total dumpings at tide during last year 107,735 tons.

A summary of the export cargoes for the first 27 days of March is as follows: Porto Rico, 2 ships, 1,028 tons; Holland, 1 ship, 9,625; Italy, 6 ships, 42,138 tons; Germany, 3 ships, 19,119 tons; Peru, 1 ship, 3,348 tons; France, 3 ships, 16,712 tons. Of the above named vessels three ships for Italy took a total of 1,379 tons of bunker coal; 1 ship for Germany took 250 tons of bunkers and 2 ships for France took 760 tons of bunkers, making a total of 2,371 tons of fuel taken by vessels engaged in this trade from Baltimore.

The first shipment of coal to France in many years has been consigned at Hampton Roads aboard the steamer Rothley, which is due to arrive early in April, and to be followed by other steamers in the same trade. An estimated shipment of 1,000,000 tons to France will be made, according to shippers.

Hampton Roads Pier Situation

N. & W. piers, Lambert Pt.	Mar. 22	Mar. 29
Cars on hand.....	1,479	2,060
Tons on hand.....	93,400	124,951
Tons dumped for week.....	121,665	112,369
Tonnage waiting.....	12,000	9,000
Virginian Ry. piers, Sewalls Pt.		
Cars on hand.....	1,672	1,614
Tons on hand.....	92,560	90,880
Tons dumped for week.....	108,225	134,836
Tonnage waiting.....	26,402	12,000
C. & O. piers, Newport News		
Cars on hand.....	1,891	2,220
Tons on hand.....	102,680	118,465
Tons dumped for week.....	133,712	83,887
Tonnage waiting.....	11,320	3,900

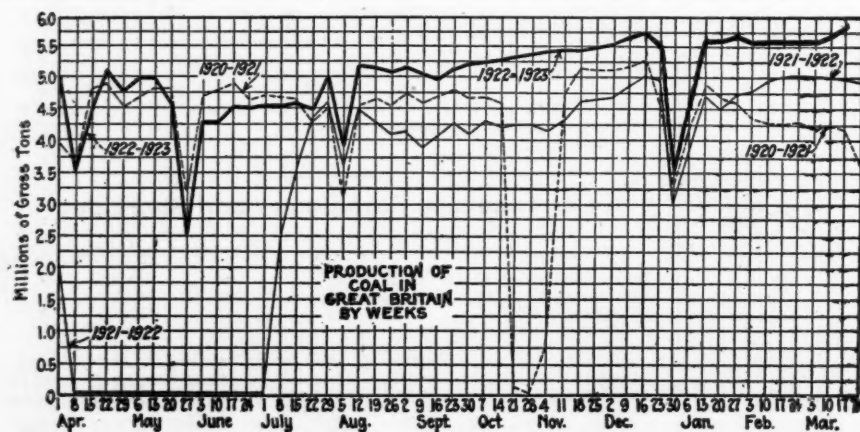
Pier and Bunker Prices, Gross Tons

PIERS			
	March 24		March 31†
Pool 9, New York.....	\$6.65@	\$7.00	\$6.50@ \$7.00
Pool 10, New York.....	5.75@	6.25	5.60@ 6.15
Pool 11, New York.....	4.50@	5.50	4.75@ 5.25
Pool 9, Philadelphia.....	7.00@	7.40	6.70@ 7.00
Pool 10, Philadelphia.....	6.15@	6.50	5.70@ 6.30
Pool 11, Philadelphia.....	5.25@	5.70	4.60@ 5.10
Pool 1, Hamp. Roads.....	6.75@	7.00	6.40@ 6.60
Pools 5-6-7 Hamp.Rds.		6.00	5.75
Pool 2, Hamp. Roads.....	6.75@	7.00	6.40@ 6.60
BUNKERS			
Pool 9, New York.....	\$6.95@	7.30	6.80@ 7.30
Pool 10, New York.....	6.05@	6.55	5.90@ 6.45
Pool 11, New York.....	4.80@	5.80	5.05@ 5.55
Pool 9, Philadelphia.....	7.20@	7.50	6.90@ 7.20
Pool 10, Philadelphia.....	6.45@	6.75	6.00@ 6.60
Pool 11, Philadelphia.....	5.30@	6.00	4.90@ 5.75
Pool 1, Hamp. Roads.....		7.00	6.60
Pool 2, Hamp. Roads.....		7.00	6.50

Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations, by Cable to <i>Coal Age</i>			
	March 24	March 31†	
Admiralty, large.....	35s.@37s.6d.	37s.6d.@40s.	
Steam, smalls.....	27s.6d.@30s.	28s.@30s.	
Newcastle:			
Best steams.....	33s.6d.@35s.	34s.6d.@35s.	
Best gas.....	33s.@35s.	34s.@35s.	
Best bunkers.....	32s.6d.@35s.	32s.6d.@35s.	
† Advances over previous week shown in heavy			
type; declines in <i>italics</i> .			

† Advances over previous week shown in heavy type; declines in italics.



News Items From Field and Trade

ALABAMA

Charles F. DeBardleben, formerly vice-president and general manager of the Alabama Fuel & Iron Co., was elected to the presidency of the corporation at a recent meeting of the stockholders, succeeding the late J. M. Overton, who met death in an automobile accident a short while back. Henry Colton, of Nashville, was elected first vice-president to succeed Mr. DeBardleben. Other executives of the company were re-elected.

ALASKA

Alaska's 1922 coal production totaled 84,403 tons, according to figures made public on March 27. Of that amount 53,658 tons came from the Matanuska field, 26,891 tons from the Nenana field, and the remainder from the Broad Pass, Bering River and Cook Inlet mines. The output in 1922 exceeded that of 1921 by 8,118 tons.

COLORADO

The Midwest Mine, of the Midwest Coal Co., Palisades, located in Mesa County, on the D. & R. G. W. R.R., which closed in June, 1920, was reopened in March, 1922.

Moore No. 2 Mine, of the North Park Coal Co., Ft. Collins, located in Jackson County, on the C. W. & E. R.R., a new mine, was opened in September, 1922.

Rainbow Mine, of the Wyoming & Utah Coal Co., Cheyenne, Wyo., located in Routt County, on the D. & S. L. R.R., which closed in January, 1922, was reopened in August, 1922.

Yampa Mine, of the Yampa Collieries Co., Denver, located in Routt County, on the D. & S. L. R.R., which closed in February, 1922, was reopened in September, 1922.

Postal Mine, of the Postal Coal Mining Co., Denver, located in Routt County, on the D. & S. L. R.R., which closed in February, 1922, was reopened in August, 1922.

The Curtis Mine, of the Colorado Fuel Co., located in Routt County, on the D. & S. L. R.R., which closed in October, 1920, was reopened in August, 1922.

Colorado coal mines produced a total of 1,909,118 tons in January and February, according to a recent report of State Coal Mine Inspector James Dalrymple.

ILLINOIS

The new Henderson mine at Gillespie, Ill., has been connected with the Chicago & Northwestern R.R. by switch track and the first coal was shipped to Chicago about March 10.

The Rex Coal Mining Co. has located a vein of coal 4 ft. 8 in. thick on a 600-acre tract of land one-half mile east of Garner.

The Yankee Branch Coal Co., Georgetown, Vermillion County, has opened a new mine on the C. & E. I. R.R.

The Justice Coal Co., Danville, Vermillion County, has opened a new mine on the Wabash R.R.

The Clover Leaf Coal Co. has reopened its mine at Coffeen, Montgomery County, on the T. S. L. & W. R.R., which was closed in March, 1921.

The Norris Coal Co., Norris, Fulton County, in November, 1922, reopened its mine on the C. B. & Q. R.R., which was closed in the autumn of 1920.

Among the many Illinois mines that have closed down are these: Royal mine of the Columbia Colliery Co., at Freeburg; No. 52 mine of the Springfield District Coal Mining Co., near Springfield; the Cantrall mine of the Buckley Coal Mining Co., at Cantrall, and the Empire No. 2 mine of the Illinois Coal Corporation, at Auburn.

On the morning of March 16 a part of the mine operated by the Security Coal & Mining Co., Duquoin, was flooded by water following heavy rains. The water did not reach the working faces at any place, and the company is running all its pumps night and day, and expect to be able to operate in about 15 days.

Anton Fanke has resigned as superintendent with the Star Coal Co., Freeburg, and has assumed a similar post with the Little Muddy Coal Co., Tamaroa.

The following mines in district No. 9 are completely closed down: Alladin Coal & Mining Co., No. 1, at Cutler; Southern Gem, No. 8, Jamestown; Illinois Sixth Vein Coal Co., Pinckneyville; Kanawha Fuel Co., St. Johns; Willis Coal & Mining Co., No. 1, Willisville; Ft. Dearborn Coal Co., De Soto; Jewell Coal Co., No. 2, Duquoin. The Jewell Coal Co. is planning extensive repairs for its mine.

The Industry Coal Co. organized under the laws of Illinois for the purpose of acquiring approximately 6,200 acres of coal lands in Franklin County, together with two mines, has placed on the market \$2,000,000 first mortgage 7 per cent serial gold bonds. John F. Gilchrist, vice-president of the Commonwealth Edison Co., is president of the company. Stuyvesant Peabody, president of the Peabody Coal Co., is vice-president; Edward J. Doyle, vice-president of the Commonwealth Edison Co., secretary, and C. E. Schrage, vice-president of the Peabody Coal Co., treasurer. Directors are Messrs. Gilchrist, Peabody, Doyle, Britton I. Fudd, president of the Public Service Co. of Northern Illinois; J. H. Gulick, vice-president of the Commonwealth Edison Co.; C. J. Gray, vice-president of the Peabody Coal Co., and Joseph Solari, secretary of the Peabody Coal Co. Under an operating agreement which extends for the life of the bonds, the Peabody Coal Co., of Chicago, will be in complete charge of the operation of the properties of the new company.

Secretary John Watt, of the Springfield sub-district appealed March 27 to the international executive board of the United Mine Workers to oust President Frank Farrington, recently re-elected, and to order a new state-wide election.

The Southern Gem Coal Corporation is sinking a new shaft at its No. 11 mine, near Percy. It will be used for ventilation purposes temporarily after it reaches the coal, but later will be converted into the main hoisting shaft of the mine.

INDIANA

Surveyors have arrived in Petersburg to lay out another seven-mile switch to be built from the Big Four R.R. to the coal fields in Pike County. The new switch will leave the main line at Rogers station just south of the White River crossing and run southeast through the town of Alford, two miles east of Petersburg, and will join the Big Four again at Clark's station, three miles south of Petersburg. The switch will penetrate the 15,000 acres of coal territory recently leased by Pennsylvania coal men, on which testing has been under way for the last two months.

The Globe Coal Co., of Petersburg, has purchased 22 acres of land south of Rogers and will move its stripping machines onto the land early this spring. The coal company has donated a new right of way for the Petersburg and Washington highway so that the new bridge over White River can be approached straight and not at right angles.

An explosion in the Wabash mine in Vigo County late in March probably due to ignition of a pocket of gas, resulted in serious injuries to two men, John Armstrong, of West Terre Haute, and Abraham Gallez, of Marion Heights. Both were burned badly about the head and face and upper portions of the body, but it was said the injuries would not prove fatal to either. The mine was not damaged by the explosion and the fire was confined to the immediate vicinity of the blast.

Richard Eddleman and Bert Fredericks, shotfired, were killed in the mine of the Carlisle Coal Co. at Carlisle, by an explosion in the mine occurring March 19, and the interior of the mine was badly damaged. Four other men who were on the bottom of the mine at the time of the disaster were brought to the top by the night shift uninjured. The first knowledge of the explosion was obtained when the night shaft reached the bottom and found twisted track and trolley wires barring the entries. A mine rescue car was immediately rushed to the scene while the day and night shifts began searching for the entombed men.

The Ogle Coal Co., Indianapolis, has decreased its capital from \$150,000 to \$100,000.

KENTUCKY

The Payne Pond Creek Coal Co., McAndrews, Pike County, has opened a new mine located on the N. & W. R.R.

The J. E. Polly Coal Co., Millard, Pike County, has opened a new mine at that place on the C. & O. R.R.

The Excelsior Elkhorn Bi-Product Coal Co., Shelbyana, Pike County, has opened a new mine on the C. & O. R.R.

The Looney Justice Coal Co., Regina, Pike County, has opened a new mine, the Looney Justice, on the C. & O. R.R.

The Victor Coal Co., McAndrews, Pike County, has opened a new mine, the Victor, on the N. & W. R.R.

In a preliminary report Lawson Blenkinsopp, Chief Inspector of Mines, states that in 1922 the total production of Kentucky mines was 41,293,933 tons, as compared with 30,282,695 tons in 1921, an increase of 11,016,274 tons. The number of mines increased from 641 in 1921 to 719 in 1922. The total number of employees, inside and outside, in 1922 was 57,666, an increase of 7,876 over the previous year, but despite this the fatal accidents were 122, or four less than in the previous year. The average number of days worked was 126, as compared with 109 in 1921. The 418 wagon mines in the state had an output of 414,000 tons. In addition, 64 mines not co-operating with the State Department of Mines had an estimated output of 100,000 tons.

A news item in *Coal Age* March 22 stated that "according to a press statement the State Tax Commission has been busy trying to explain how come that Henry Ford paid \$15,000,000 for 30,000 acres of land and improvements in Pike County, when Pike's entire 423,782 acres is assessed at only \$19,466,686." Grant Phillips, assistant mine inspector, Eighth district, Pikeville, writes that he thinks this is an error as the stamps on the deed would indicate that only \$6,000,000 was paid for the land in Kentucky. Mr. Phillips says he understands that most of the land involved is in West Virginia so that if \$15,000,000 was paid \$9,000,000 was for property in the latter state. The 1923 assessment for Pike County, Mr. Phillips says, is approximately \$27,000,000, the exact figures not being available.

Coal produced in Kentucky in 1922, according to Grant Phillips assistant mine inspector, 8th district, Pikeville, totaled 41,377,217 tons, an increase of 11,094,522 tons over 1921. The mines employed 10,712 men outside and 47,607 inside, a total of 58,319. Mines co-operating with the State Department of Mines number 740; there are 98 mines that do not co-operate with the department and 441 wagon mines in the state.

The Elkhorn Coal Co. reports gross earnings for 1922 of \$3,443,877 against \$2,195,158 in 1921. After payment of all expenses and charges and allowances for taxes, there was a net loss of \$99,906 against \$380,990 in the previous year. After preferred dividends, there was a deficit of \$495,858 and the profit and loss surplus on Dec. 31, 1922, was \$495,331 against \$909,640 at the end of 1921.

Officials of Perry County have filed a suit in the Franklin County Circuit Court at Frankfort to compel the State Tax Commission to accept assessments of \$13,606,753 for 1923 taxation purposes in Perry County. The commission has ordered an increase of \$5,600,000, most of which would be paid by coal interests in Perry County. The additional assessment is declared unfair and unreasonable.

The Columbus Mining Co., of Chicago, with holdings in eastern Kentucky, has opened a district sales office at 610 Fayette Bank Building, Lexington. John W. Hall, who for the past two and a half years has been associated with the C. L. Ryley Coal Co., has been appointed Southern sales manager.

Congressman Alben W. Barkley, of Paducah, who is a Democratic candidate for nomination for governor, is panning the coal interests and arguing for a tonnage tax on coal production. He is stirring up much talk concerning coal taxation. In a recent talk he held that the mouth-of-the-mine value of coal production in Kentucky last year was \$162,000,000, or more than the present assessed coal-land valuation of the state. "Barkley might as well argue the value of made bricks as against value of clay in a pit," remarked one coal man.

The Louisville coal trade arranged a banquet at the Louisville Old Inn Hotel on April 2 for Morris M. Kling, of the Louisville Coal & Coke Co., who is leaving Louisville in April to make his home at Oakland, Cal.

The Marian Coal Co., Lexington, has recently filed amended articles increasing its capital stock from \$200,000 to \$400,000.

MARYLAND

The Equitable Fuel Co., of the Maryland Trust Company Building, Baltimore, has increased its capital to \$10,000.

The Consolidation Coal Co. had its heaviest production on March 13 for any one day since the miners' strike was declared nearly a year ago. The day's output was 1,790 tons from mines Nos. 1, 3, 4, 7, 9, 10, 11 and 13, at Frostburg. It is reported that more than 500 men are now working for the company.

MINNESOTA

A committee from the St. Paul Association has been named to study the use of North Dakota lignite for industrial and other use. The move was made at the instance of representatives of the Association of Commerce, of Minot, N. D., which is seeking to expand the field for lignite.

The Northwestern regional board of the American Railway Association has solemnly passed resolutions urging the coal using public to buy its coal for next season early so that the docks may stock accordingly. It has been remarked in the Twin Cities that this board might as well pass resolutions recommending that spring be inaugurated each year on March 10 or that the ice go out and navigation on the Great Lakes be regularly opened up not later than April 2. The dear public will buy its coal when, as and if it pleases.

E. S. Kendrick, of the Kendrick Coal & Dock Co., Minneapolis, predicts that the dock coal traffic, once 10,000,000 tons a season, will drop to insignificant amounts if there is not a speedy revision of the lake and rail rates on coal to equal the favorable rates from the all-rail fields. In reply, a representative of one of the railroads sets up that the rates complained of are generally made by the commission, and could not be changed without resulting in a general change. Yet the all-rail rates were established by carriers of their own volition.

The purchase of coal fields in Kentucky by Henry Ford is expected to forecast the bringing of coal via the Mississippi River to the proposed St. Paul Ford plant.

A good demand for shipments from the docks has resulted at Duluth-Superior harbor through the starting up of some of the mines of the Mesaba iron range. This coal was purchased some time ago.

J. A. Ferguson, manager of the Pittsburgh Coal Co. at Duluth, and L. D. McNamara, manager of the Carnegie Coal & Dock Co. at Superior, Wis., take a pessimistic view of the rate condition to the Northwest. Both assert that unless a readjustment is accomplished, a minimum amount of coal will be shipped to the docks here this year.

MISSOURI

The Mitchell & Lovell Coal Co. has purchased all of the property of the Hanks Coal Co. from Bevan & Sneed and has obtained a lease from Mrs. Lowry for a considerable acreage of coal land. Immediate arrangements will be made to put this much talked-of coal mine in operation at once. The Mitchell & Lovell company has one mine in operation now.

The Mosby Coal Mining Co. has announced that on April 1 it will begin sinking a new shaft on its property at Mosby and this will result in two mines being put in operation. It has been announced that a large contract from a North Kansas City manufacturing concern will be available as soon as coal is mined. It also is said that if sufficient fuel can be produced a large manufacturing concern will make Mosby its headquarters and will erect a factory here.

The Domestic Fuel Co., of Kansas, has been incorporated with a capital of \$500,000 at Mindenmines, to produce and sell coal. Incorporators: G. K. Mackie, J. W. Mackie, A. H. Schlanger, Thomas Mackie, C. M. Sweeney.

NEW YORK

Colonel C. D. R. Stowits, after nine years of close application as receiver of the bankrupt coal operating firm of Frank Williams & Co., has made a final report, by which the creditors receive 50c. on the dollar. Judge Hazel highly commended the work on receiving the report. The company owned coal mines, included the Upper Hillville and Oak Ridge, in Clarion County, Pa. Frank Williams, a Buffalo coal shipper of large business capacity, died quite a long time ago. His successors bought the mines, but were unable to operate them profitably.

Timothy Burns, general manager of the Lackawanna plant of the Bethlehem Steel Co., at Buffalo, announces that two batteries of modern coke ovens with 60 ovens each and total capacity of 110,000 tons of coke a month, will be built at once.

The Anthracite Mining Co. has been incorporated at Albany to open undeveloped coal property in the vicinity of Scranton, Pa. It is affiliated with the Marquette Coal Co. of Albany, and will have headquarters with the Marquette company, which deals in coal at wholesale. The officers of the Anthracite Mining Co. are: President, Arthur T. Palmer; vice-president, Ernest A. Barvoets; vice-president, Lewis F. Harder, Philmont; vice-president and general manager, William B. Verney; treasurer, Jacob H. Herzog; secretary, Arthur L. Andrews.

Bids for furnishing 45,000 tons of slack coal to the city waterworks of Buffalo, which is the principal item of that sort in the spring, were all thrown out by the City Council on the request of Councilman Kreinheder, who declared that he could buy in the open market lower than the lowest bid (McVicker Coal & Coke Co., Cleveland, \$2.25 on a \$2.39 freight rate). Shippers say it can be bought for 40c. less, but the high bidding is attributed to the belief that prices will soon advance.

OHIO

Plans are being made by the Cincinnati Southern to extend that line into the Harlan coal fields, which will give another outlet to a large tonnage toward the Cincinnati gateway. Word comes from the Louisville and Nashville that it will tunnel through the mountains at Krypton, Ky., to give an outlet to North Fork coal and a part of the acreage recently acquired by Henry Ford from the Peabody interests.

Plans have been submitted to the U. S. Engineer's office in Cincinnati for the erection of a half million dollar coal-handling plant to be installed at the foot of Freeman avenue on the river bank. Much mystery surrounds the undertaking but it is a well established fact that this is to be put in by the Island Creek Coal Co. interests. The plans call for the erection of a 70-ft. crane that will swing the coal from the river barges clear to land or to the cars that may be waiting to be filled for rail-river coal. While a great amount of this coal will go to use in Cincinnati and the surrounding territory, in advantageous seasons it will also be shipped to nearby territory where the combined rates apply.

The federal government and especially the Department of the Interior has been called upon to aid in extinguishing the fire which has been raging in mines around Straitsville and Shawnee in Perry County for the past 40 years. Representative Randolph, of Perry County, introduced a resolution in the Ohio Legislature asking federal aid. His resolution requests the U. S. Bureau of Mines to co-operate with the Ohio Mining Department in an effort to stop the destruction of coal deposits.

G. M. Richards, general manager of the Cumberland Manchester Ry., a coal line that feeds in to the Louisville & Nashville in southeastern Kentucky, was in Cincinnati recently making purchases. He stated that many improvements are to be made to the physical properties of this road.

PENNSYLVANIA

Representative John E. Stavitski, of Luzerne, has introduced a bill which requires that all anthracite knocked from the miners' cars en route from the mines to the breaker shall be weighed and the companies made to pay for it at the prevailing rates, the money to go into a miners' reserve fund for the benefit of injured and aged employees of the said mine. "The miners lose thousands of dollars through the dockage resulting from coal knocked from the cars. It's the miner's coal; they should be paid for it," Stavitski said in introducing his bill.

State Senator C. M. Barr, Allegheny County, has introduced in the Senate a bill providing for the appointment of miners' examining boards. It is identical with the Heffran House bill introduced Feb. 19.

Representative Chaplin, Cambria County, has introduced a bill duplicating that of Senator Stinemann's measure in the upper house, intended to protect bituminous-coal miners in the determination of the amount of coal to be used as the basis for calculating wages.

A measure that was defeated two years ago has been introduced by Representative Staudenmeier, Schuylkill County. The bill would regulate the sale of anthracite and fix standards of size.

Representative Thomas, Luzerne County, has offered a bill in the House that requires the carrying of mine water from mines and washeries to streams and rivers in proper sluices or drains. It is unlawful to permit this water to flow over the land. Overflows and leaks are not allowed. A fine of \$100 a day is provided for violations.

Representative Post, Washington County, introduced a bill in the House March 27 to relieve life tenants of land from payment of taxes on underlying veins of coal which they have no right to operate. The bill provides that the owner of the veins shall pay the taxes. The owner is to be assessed up to an amount equal to the taxes on similar acreage of coal in the same vicinity and the life tenant shall only be required to pay the residue of the taxes assessed on the land after deducting the portion of the tax required to be paid by the owner of the veins of coal. Assessors are empowered to assess coal and surface separately in cases where the life tenant of land has not the right to operate the coal underlying the surface.

A Court of Industrial Relations, to consist of three judges, is created by a bill introduced in the House by Representative Parkinson, Greene County. The court would have jurisdiction over mining industries, those engaged in the manufacture and transportation of food and clothing and would have power to investigate controversies arising between employer and employee or between groups of workers in these industries. Its powers extend under the provisions of the bill to wages, working and living conditions and the conduct of the industries. The judges would be named by the Governor and would receive \$5,000 a year and serve for four years. The proposed court would sit at Harrisburg.

A bill introduced last week by Representative O'Boyle, Lackawanna, requires owners and operators of coal mines and operations to furnish coal at current prices for the use of hospitals, poorhouses and other charitable institutions, schools, churches and buildings of municipal or quasi-municipal character. A provision in the bill is that the mine owner may demand that the coal be paid for at the mine.

Bituminous-coal companies recently incorporated in Pennsylvania are as follows: Monongahela Fuel Co., Pittsburgh; capital \$25,000; treasurer, John Robinson, Pittsburgh; incorporators, John Robinson, Jr.; H. L. Robinson and David P. Lindsay, all of Pittsburgh. W. R. Calverley, Inc., Pittsburgh; \$5,000; Harry V. Wyld, Pittsburgh, treasurer; incorporators, Walter R. Calverley, Joseph G. Calverley and Harry V. Wyld, Pittsburgh. Sterling-Graham Coal Co., Masontown; \$150,000; W. W. Sterling, Graham, Masontown, treasurer; incorporators, William L. Graham, Estella S. Graham and E. W. S. Graham, Masontown. Godfrey Hill Coal Co., Irvona; \$10,000; E. W. Turley, Irvona, treasurer; incorporators, E. W. Turley, G. W. Turley and E. M. Turley, Irvona. Browns Run Coal Co., Uniontown; \$50,000; Amedee J. Hagan, Uniontown, treasurer; incorporators, Amedee J. Hagan and Altha M. Craig, Uniontown and James S. Rush, Masontown.

At the annual election of the Pittsburgh Coal Co., March 28, F. J. LeMoyné, formerly secretary, was chosen to succeed F. M. Wallace, vice president in charge of finance. Mr. Wallace resigned to give his attention to his banking interests in Erie, where he is president of the First National Bank. The other officers elected were: President, W. F. Field; Vice-President in charge of operations, J. A. Donaldson; Vice-President in Charge of Sales, James H. Woods; Vice-President in Charge of Ohio and Kentucky operations, G. C. Weltzell; Vice-President and Comptroller, J. B. L. Hornberger; General Counsel, Don Rose; Secretary, Aaron Westlake; Treasurer, A. F. Fell; Auditor, J. D. McPherson. Vacancies among the directors were filled by electing George B. Taylor, Henry Oliver Rea and Peter Reiss.

Thirteen miners after being entombed for ten hours in the No. 1 drift of the Nesquehoning mine of the Lehigh Coal & Navigation Co., in Panther Creek Valley, were released in good health and removed to their homes in automobiles.

Bids for the sale of anthracite veins underlying the River Common at Wilkes-Barre were opened March 28. James J. Powell, of Scranton, presented a bid of 52c. a ton, explaining that the minimum amount to be paid the city would be arranged by him and council if he is awarded the contract. Mr. Powell is believed to represent the Glen Alden Coal Co. The second bid was from James F. Bell, also a Scranton attorney, who it is believed represents the Hudson Coal Co. His bid was 47c. a ton, with \$10,000 as a minimum to be paid the first year and \$25,000 as the minimum to be paid during succeeding years.

John Collins, of Nanticoke, has announced his candidacy for secretary-treasurer of District No. 1, United Mine Workers of America. Mr. Collins is a former president of the district. In addition to W. J. Brennan, the president of the district, other candidates for that office are Rinaldo Cappelini and P. J. Philbin.

Production of coal in the Second Bituminous district during 1922 was 5,395,115 tons, according to the report of C. B. Ross, mine inspector. This is an increase of 1,373,641 tons over 1921. Coke production during the year was 1,091,676 tons, as compared with 377,041 tons in 1921.

The Pennsylvania Coal Co. in a communication to the Board of Education of Olyphant stated that it would erect a new two-story school building at Underwood on account of the increasing number of children attending the schools there. The board will co-operate with the company in selecting a site for the building.

Following the annual meeting of the stockholders of the Bertha Coal Co., Pittsburgh, and the Consumers' Fuel Co., an associated interest, held March 21 in the company offices, Chamber of Commerce Building, the board of directors of the respective companies re-elected John H. Jones president for the ensuing year. Isaac J. Jenkins was re-elected president of the Consolidated Fuel Co., which also is an associated interest.

Madeira, Hill & Co., removed their offices on March 30 from the North American Building to 260 South Broad Street, Philadelphia.

TENNESSEE

The Enterprise Foundry & Machine Works, Bristol, has changed its name to the Enterprise Wheel & Car Corporation. There has been no change in officers, sales force or shop organization.

UTAH

The Columbia Steel Corporation has awarded to the Link-Belt Co. a contract for the steel structure and machinery for its 4,000-ton tippie. As far as capacity is concerned this will be the largest tippie in the Rocky Mountain region. Its cost is probably only exceeded by the tippie of the United States Fuel Co.'s Blackhawk mine.

The Badger Coal & Lumber Co., Ogden, has been reorganized. S. F. Norton becomes manager and treasurer of the company. O. P. Badger will be president. The organization is being enlarged with a view to doing a bigger business.

The Mutual Coal Co. has purchased the property of the Moreton Coal Co. in Carbon County. The consideration is said to have been \$350,000. The Mutual will now become one of the largest producers in the state with an output of 1,000 tons per day. The acreage involved totals 380. It adjoined the Mutual's property. This company will now be in a position to mine a single vein of coal throughout its entire holdings, which run into 2,000 acres.

Four miners who risked or lost their lives in attempting to save their fellow workers have been awarded gold hero medals by the Joseph A. Holmes Safety Association, which annually selects distinctive acts of bravery in the mining industry. The presentation of the medals will form a portion of the program of the Seventh International First Aid and Mine-Rescue meet to be held in Salt Lake City, Utah, on Aug. 27, 28 and 29, under the auspices of the U. S. Bureau of Mines. Warren A. Hoy, Frank Carter and Peter G. Rumpf, all of whom were employed in the Lincoln Colliery, Rausch Creek, Pa., are awarded medals for rescue work when three men were overcome by dynamite fumes in a drainage tunnel. Carter, one of the men overcome by the fumes, was revived and without assistance re-entered the tunnel and rescued one of the men who was yet in the tunnel. Hoy lost his life and the medal awarded him will be presented to his widow, Lillian M. Hoy, Tower City, Pa. The fourth medal is awarded to William H. McKiernan, who lost his life after rescuing a fellow miner from black damp in the bottom of a coal mine shaft on the property of J. M. Williams, Kimberly, Mo. The medal will be presented to his widow, Cora A. McKiernan.

VIRGINIA

The L. A. Sneed Co., Washington, D. C., announce the opening of a Norfolk office at 515-17 Flatiron Building. S. T. Sneed will be manager of the new office, but will continue to give a portion of his time to the accounting business.

The City of Norfolk rejected all bids received for supplying the city with 12,000 tons of coal during 1923. The Stewart Coal Co. bid low, at \$3.65, the L. A. Sneed Co., next with \$4.10, and C. G. Blake & Co., third with \$4.50. There were no other bids. The specifications called for New River or Pocahontas run-of-mine coal at the mines.

Clyde E. Smith has been named president of the High Carbon Coal Corporation, at Pulaski, and H. V. Smith has been elected secretary. The company was recently incorporated with a capital of \$150,000.

WASHINGTON

The annual spring excursion of the College of Mines, University of Washington, was made this year from March 21 to 27 to the property of the Britannia Mining & Smelting Co., on Howe Sound, British Columbia. The party of thirty, under the direction of Dean Milnor Roberts and Prof. Joseph Daniels, divided its time between the Britannia mine and the new concentrating plant of 5,000 tons capacity which recently went into operation. C. P. Browning, general manager, accompanied the party during its stay.

WEST VIRGINIA

Owing to an increase in the revenue from the gross sales tax law in this state during the first quarter of nearly \$400,000 as compared with the corresponding quarter of 1922, it is estimated now by the State Tax Commissioner that it will not be necessary to fix rates on coal and other commodities quite so high as was originally contemplated when the Arnold bill was introduced at the initial session of the Legislature. Instead of a rate of 1 per cent on the value of all coal produced and sold, it would be necessary to impose a rate of only $\frac{1}{2}$ of 1 per cent as against the rate of $\frac{1}{2}$ of 1 per cent now provided by law, or \$8 as against \$4 per thousand dollars' sales proceeds. In other words the rate would be just doubled. It is probable that the Legislature of West Virginia will pass either the Arnold bill with the rates fixed as above or the Zimmerman bill which carries a rate of 1 per cent on the gross value of all coal mined and shipped. The gross sales tax law is now yielding a return of about \$1,000,000 a quarter, or approximately \$4,000,000 a year. If the rate is increased as proposed it would yield a total revenue of \$5,400,000 a year, it is estimated.

The Dry Fork Smokeless Coal Land Corp., chartered under the laws of Virginia, has been granted authority to do business in West Virginia.

An important deal has just been consummated under the terms of which C. H. Mead, of Beckley, has disposed of his holdings in the Ingram Branch Coal Co. to Lynchburg interests. James Gorman, of Lynchburg, has been elected president of the purchasing company.

By May 1 the Fenimore Collieries at Freedie, in Boone County, expect to be in a position to operate, as development work is proceeding rapidly. A number of miners' dwellings are being erected and a town established at the seat of operations of this company.

One of the largest companies recently organized in northern West Virginia is the Morgantown Gas Coal Co., which is capitalized at \$3,000,000 and which will have its general office at Morgantown. James A. Paisley, extensively interested in West Virginia mining properties, is one of the larger stockholders in the new concern and associated with him are Gordon W. Wilcox, of Cleveland; Stephen Arkwright of Fairmont; Ross I. Davis and John McCauley Kenney, of Pittsburgh; John Schweinsburg, of Parnassus, Pa.; P. W. Sherman, of Lakewood, Ohio; Thomas Skillcorn and John J. Snure, of Wheeling.

The Bear Run Coal Co. has been authorized to change the location of its principal office from Tloga to Richwood and to increase its capital stock from \$5,000 to \$25,000.

Officials of the United Mine Workers in northern West Virginia assert that practically all the mines in Monongalia County within the jurisdiction of subdistrict 4 of the Miners' Union have signed the new scale for the next coal year and they expect every mine owner in the Monongalia section eventually to sign the new scale. This scale will be effective from April 1, 1923, to March 31, 1924. James McCleary, district organizer, said late in March that there were only about eight independent operators in the Morgantown district who had not signed the scale and he did not expect

any difficulty with the cases remaining to be settled.

WISCONSIN

Dissolution of the Wisconsin Coal Committee is presaged by a report issued by Paul E. Pressentin, secretary of the committee, detailing the accomplishments of that body. The report advises the people of the state to buy their supplies of hard coal for next winter's use as early as possible.

The Valley Coal Co., of Milwaukee, has been reorganized under the name of Valley Coal & Dock Co. B. M. Ainesworth is president; R. L. Clements, general manager; F. F. Kegel, treasurer; and J. F. Sweeney and F. H. Baker, directors. The company's dock is on the Menomonee River, just west of Muskego Ave.

Clifford F. Messinger, for the past three years general sales manager of the Chain Belt Co., Milwaukee, has been elected second vice-president, according to an announcement just made by the company.

WYOMING

Production in the southern Wyoming coal fields was the lowest in 1922 in the past 11 years, according to the annual report of Mine Inspector Robert T. Sneddon. The total last year was 4,453,000 tons, a decrease of 983,576 from the 1921 total of 5,436,576. There were 18 fatal accidents and 276 non-fatal accidents, giving a fatality rate of 2.7 per 1,000 men employed. The average number of miners working was 6,620, or 1,054 more than in the previous year.

WASHINGTON, D. C.

Plans for systematic research in the matter of fireproofing mine timbers were discussed at a recent conference in Washington attended by George S. Rice, chief mining engineer of the Bureau of Mines; W. J. Loring, former president of the American Mining Congress, and a representative of the Madison laboratory of the Forest Service. It is hoped that some material may be found which can be used as a coating for mine timbers which will at once preserve them from decay and make them slow burning if it is impossible to devise a substance which would render them entirely fireproof.

The Bureau of Supplies and Accounts, Navy Department, solicits bids for the transportation of one cargo of approximately 5,000 tons of Navy coal from Hampton Roads, Va., to Navy Yard, Boston, Mass., in vessel of American registry. The loading date at Hampton Roads will be about April 18, 1923. The guaranteed daily discharge rate at Boston is 500 tons. Bids will be opened at noon, April 11.

The Navy Department awarded the following contracts for coal for navy yards and naval stations March 26 on the basis of bids opened March 22: W. H. Bradford Co., Philadelphia, 14,000 tons for delivery at New York, at \$5.92 per ton; Maryland Coal & Coke Co., Philadelphia, 5,000 tons, for delivery at Philadelphia Navy Yard, at \$6.10 per ton; 2,500 tons for delivery at coaling piers, Philadelphia, \$5.85 per ton; Imperial Coal & Coke Co., Baltimore, 10,000 tons, for delivery at Washington, D. C., at \$6.17 per ton; W. A. Merrill Sons & Co., Garrett, Pa., 50 tons, for delivery at Bellevue Magazine, D. C., at \$6.34 per ton; 150 tons for delivery at Alexandria, Va., \$6.34 per ton; Quemahoning Coal Co., Baltimore, 4,000 tons for delivery at Annapolis, Md., at \$6.49 per ton; Chesapeake & Virginian Coal Co., Norfolk, 3,600 tons for delivery at Portsmouth, Va., at \$7.28 per ton.

At the request of Secretary Hoover, of the U. S. Department of Commerce, F. M. Feiker, assistant to the president of the McGraw-Hill Co., Inc., has again been granted leave of absence to undertake the organization and general direction of the world surveys of raw material supplies, rubber, sisal hemp, nitrates, for which Congress recently made an emergency appropriation of \$500,000. Mr. Feiker served as assistant to the Secretary of Commerce during the first year of Mr. Hoover's administration, acting as general assistant in organizing the personnel and industrial trade contact committees in relation to the Bureau of Census, the Bureau of Standards, and the Bureau of Foreign and Domestic Commerce. Out of his nine months' work came the monthly statistical survey of the Bureau of Census, the Division of Simplified Practice of the Bureau of Standards, Commerce Reports in new form, and fifteen so-called commodity divisions of the Bureau of Foreign and Domestic Commerce.

CANADA

COAL OUTPUT OF BRITISH COLUMBIA,
FEBRUARY, 1923

VANCOUVER ISLAND DISTRICT	
Mine	Tons
Canadian Collieries (D) Ltd., Comox.	15,803
Canadian Collieries (D) Ltd., Extension	17,107
Canadian Collieries (D) Ltd., South Wellington	7,324
Western Fuel Corporation of Canada, Nanaimo:	
No. 1 Mine	28,177
Reserve Mine	22,353
Wakesiah Mine	8,265
Granby M. S. & P. Co., Cassidy	19,111
Nanosee Wellington Collieries, Lantzville	9,527
Old Wellington, Nanaimo	722
Total	128,389
NICOLA-PRINCETON DISTRICT	
Middlesboro Collieries, Middlesboro.	6,915
Fleming Coal Co., Merritt	1,109
Coalmont Collieries, Coalmont	16,599
Princeton Coal & Land Co., Princeton	1,826
Total	26,449
CROW'S NEST PASS DISTRICT	
Crow's Nest Pass Coal Co., Coal Creek	48,038
Crow's Nest Pass Coal Co., Michel	33,971
Corbin Coal & Coke Co., Corbin	7,205
Total	89,214
Grand total, February	244,052

Anthracite imported by Canada from the United States during 1922 totaled 2,514,249 net tons, compared with 4,567,370 net tons in 1921 and 4,912,964 net tons in 1920. Imports of bituminous coal from the United States during the year amounted to 10,924,645 tons, as against 13,536,250 tons in 1921 and 15,902,632 tons in 1920. For the first time in many years coal was imported from Great Britain, about 817,000 tons having arrived during the last six months of the year.

The coal miners in **District 18**, United Mine Workers of America, numbering upward of 9,000, have voted to accept the agreement fixing the wages for 1923 signed by their representatives and the Western Canada Coal Operators' Association.

The new shaft of the Dominion Coal Co. at O'Neill's Point, to be known as Dominion No. 26 Colliery, when completed will be, next to Dominion No. 2 Colliery, the biggest coal producer of all the mines of the Dominion Coal Co. At the end of February the shaft had been sunk to a depth of 441 ft. The total depth of the shaft when completed will be 670 ft., and with the fast rate of progress that is now being made it should be ready to hoist coal by the middle of May. The work of the sinking of the shaft is under the direction of W. H. Graham, construction superintendent of the Corporation, with W. H. Metcalf in charge of actual operations.

S. H. Butt, president and general manager of the Little River Coal Mining Co., of St. George's, Newfoundland, has announced that boring will be commenced on his company's areas during this month. It was also said that the new 4½-in. core drill recently purchased by the L. R. C. M. Co. had been shipped and will have a depth capacity of 2,000 ft. The company controls an area of coal lands of eleven square miles.

The **East Wellington Coal Mines Ltd.** has been incorporated to develop coal lands situated west of Nanaimo and adjacent to the abandoned workings of the "Jingle Pot" mine. H. W. Maynard is the president and J. J. Grant, the general manager. Good progress already has been made in the driving of the slope. The railway and wharves, together with much of the other plant of the old "Jingle Pot" are to be used. It is expected that production will be started within a month and that an output of 1,000 tons a day will have been reached in six months. It is the Wellington seam that will be exploited. Where it has been struck at a depth of 1,100 feet it is 5 ft. 6 in. thick. The property, it is estimated, will produce 6,000,000 tons.

The **Webster Manufacturing Co.**, of Chicago, Ill., and Tiffin, Ohio, announces the organization of a new corporation, the **Webster-Ingalls, Ltd.**, Toronto, Ont., which will design and manufacture elevating, conveying and power transmission machinery along the same lines as now manufactured by the Webster company.

Uehling Instrument Co., Paterson, N. J., manufacturer of C.O.2 recording instruments, has appointed the Combustion Engineering Corporation, Ltd., with head office in Toronto, and branches in Montreal, Winnipeg and Vancouver, as its Canadian sales agent.

Obituary

Alfred M. Shook, age 77, died at his home in Nashville, Tenn., March 18. Colonel Shook was one of the early developers of coal and ore properties in the Birmingham district and also was a pioneer in iron and steel manufacture. He was prominently identified with the early operations of the Tennessee Coal, Iron & Railroad Co. in Alabama and Tennessee and was vice-president and general manager of the corporation for a number of years. At the time of his death he had retired from many of his activities but was president of the Brush Creek Coal Co., a Tennessee colliery, and was identified with banking institutions in Nashville, a trustee of the Mutual Life Insurance Co. of New York, and was active in civic and religious work in his home state.

Frederic A. Potts died at his home in Lakewood, N. J., Saturday, March 24, in his 63rd year. He was the head of F. A. Potts & Co., wholesale anthracite coal dealers, 143 Liberty Street, New York. He was a member of the Lakewood Country, Union, Turf and Field, St. Anthony and Rumson clubs and the St. Nicholas Society. He had resided in Lakewood for twenty-five years. He leaves his wife and one son, David F. Potts.

Traffic News

The Interstate Commerce Commission, after a further hearing, rendered a decision March 5 in docket No. 10197, **The Avella Coal Co. et al. vs. the Pittsburgh & West Virginia Ry. Co.** and the Director General of Railroads, as agent. Finding that undue prejudice existed in the distribution of coal cars the commission ordered that the defendant pay unto the complainants named hereinafter on or before June 1, 1923, the amounts set opposite their respective names, with interest thereon in each case at the rate of 6 per cent per annum from March 22, 1918, as reparation: Avella Coal Co., \$10,745.56; Duquesne Coal & Coke Co., \$26,584.58; David L. Newill, receiver of Pittsburgh & Southwestern Coal Co., \$3,451.33; Waverly Coal & Coke Co., \$7,581.88; Meadow Lands Coal Co., \$17,559.99. It was further ordered that **James C. Davis**, Director General of Railroads, as agent, be directed to pay unto the complainants named hereinafter on or before June 1, 1923, the amounts set opposite their respective names, with interest thereon in each case at the rate of 6 per cent per annum from March 22, 1918, as reparation on account of unduly prejudicial practices in the distribution to complainants' mines of coal cars for use in interstate commerce: Avella Coal Co., \$1,036.08; Duquesne Coal & Coke Co., \$28,558.53; David L. Newill, receiver of Pittsburgh & Southwestern Coal Co., \$7,347.45; Waverly Coal & Coke Co., \$735.37; Meadow Lands Coal Co., \$1,671.47. The complaints of the Pryor Coal Co. and the Ferguson Coal & Coke Co. were dismissed for lack of proof of damage.

The **Louisville & Nashville R.R.** on March 19 placed contracts with several car-building concerns for 8,000 cars, of which 6,000 are steel coal cars, the contracts also including thirty-six engines. The orders amounted to over \$18,000,000. The Pittsburgh Pressed Steel Car Co. got the order for 6,000 coal cars.

C. A. Pennington, superintendent of terminals of the Cleveland, Cincinnati, Chicago & St. Louis R.R. (Big Four) and also for the Chesapeake & Ohio R.R., on March 21 stated that plans have been made for spending \$7,000,000 in rebuilding and double tracking the C. C. & St. L. bridge across the Ohio River at Louisville, which will materially reduce terminal congestion there. This bridge has not been used for some time in handling the heavier coal trains or big locomotives, resulting in breaking up of trains at Louisville and remaking at Jeffersonville, Ind., which has retarded big coal movement through Louisville materially.

Coal users operating on the Norfolk waterfront will have to provide their own barges for hauling coal supplies after April 15. The Norfolk & Western and Virginian railways have published tariffs effective that date discontinuing the barging practice in the inner harbor. A protest has been made to the Interstate Commerce Commission by the Chamber of Commerce and representatives of both coal dealers and consumers, seeking to have the proposed regulation revoked.

Colonel H. C. Nutt, president and general manager of the Monongahela Ry.,

denies a report coming from some purchasing agents for railroad companies or purported to have been made by them to the effect that the **Monongahela Ry. would not honor assigned-car orders**. Colonel Nutt said: "This company has been accepting cars of railroad ownership for loading fuel coal for the owning company ever since the car shortage developed last fall and expects to continue the practice unless and until it is prohibited by the Interstate Commerce Commission or other competent authority." Wholesalers in Morgantown, W. Va., report having had considerable difficulty with old customers who refused to enter into new contracts and several assigned as the reason that co-operation could not be obtained from the Monongahela Ry.

On account of accumulation an embargo was placed March 30 by the New York Central R.R. against the acceptance of all shipments of bituminous coal from New Jersey Central R.R. stations and from all connections at all junctions for points on or via the Boston & Maine R.R., except B. & M. R.R. fuel.

Coming Meetings

National Retail Coal Merchants' Association will hold its sixth annual convention June 25, 26 and 27 at Scranton, Pa., with headquarters at the Hotel Casey. The registration fee of \$15 will include all meals except breakfast, transportation to and from the mines which will be visited, and the banquets. The only other expenses to be incurred will be hotel room and transportation to and from Scranton. Executive secretary, J. E. O'Toole, Philadelphia, Pa.

National Safety Council will hold its twelfth annual safety convention at the Buffalo Statler Hotel, Buffalo, N. Y., Oct. 1-5. Managing director and secretary, W. H. Cameron, 168 No. Michigan Ave., Chicago, Ill.

International First-Aid and Mine-Rescue meet will be held Aug. 27-29, at Salt Lake City, Utah.

American Institute of Electrical Engineers will hold its annual convention June 25-29, at Swampscott, Mass. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

Coal Mining Institute of America will hold its annual meeting Dec. 19, 20 and 21 at Pittsburgh, Pa. Secretary, H. D. Mason, Jr., Chamber of Commerce Building, Pittsburgh, Pa.

The Virginia Coal Operators' Association will hold its annual meeting on April 21 at Norton, Va. Secretary, G. D. Kilgore, Norton, Va.

International Railway Fuel Association will hold its spring convention at the Hotel Winton, Cleveland, Ohio, May 21-24. Secretary-treasurer, J. G. Crawford, Chicago, Ill.

The American Mining Congress will hold its twenty-sixth annual convention in conjunction with the **National Exposition of Mines and Mining Equipment**, Sept. 24-29, at the Milwaukee Auditorium, Milwaukee, Wis. Secretary, J. F. Callbreath, Washington, D. C.

Indiana Retail Coal Merchants' Association will hold its annual meeting April 25 and 26 at the Severin Hotel, Indianapolis, Ind. Secretary, R. R. Yeagley, Indianapolis, Ind.

American Society for Testing Materials will hold its annual meeting at the Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., beginning June 25 and continuing throughout the week. Secretary, E. Marburg, Philadelphia, Pa.

The Colorado & New Mexico Coal Operators' Association will hold its annual meeting June 20 at Denver, Col. Secretary, F. O. Sandstrom, Denver, Col.

The Electric Power Club's annual meeting will be held at the Homestead, Hot Springs, Va., June 11-14. Executive secretary, S. N. Clarkson, Cleveland, Ohio.

National Foreign Trade Council will hold its annual conference May 2-4 at New Orleans, La. Secretary, O. K. Davis, 1 Hanover Square, New York City.

The eleventh annual meeting of the Chamber of Commerce of the United States will be held in New York City May 7-10.

National Coal Association will hold its sixth annual convention June 19-22 at Atlantic City, N. J. Assistant secretary, C. C. Crowe, Washington, D. C.

The Canadian Retail Coal Association will hold its nineteenth annual convention at the King Edward Hotel, Toronto, Ontario, Canada, on April 12 and 13. Secretary, B. A. Caspell, Brantford, Canada.